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GENERAL NEWS SECTION

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AN interesting speculation of the future arises in connection with both the retrospect and the present view of the railway bond market. A very few years have gone by since the time when the interest return on the "gilt-edged" long time railway bond was as low as 3.75 per cent. and, in a few cases, as low as 3.50. Those were the days when there was lively guessing in financial quarters whether the general interest return on the high grade security would not go lower still, perhaps settling down to a 3 per cent. basis at last; and the majority opinion among the financiers probably veered in that direction. One logical result was the popularity of the long time railway bond.

It commanded a higher price not merely because it would defer the trouble of reinvestment but also because of the belief that its interest rate and return in a few years would range above the market standard. Exactly the reverse has come to pass. The solid long time bond of a strong railway has sunk probably an average of eight or ten points in price; its interest return is probably a half of one per cent. greater to the new investor than to the old holder; its quality of "saving the trouble of reinvestment" as an inducement to the investor has all but vanished; and the holder of the short time bond at an approaching maturity finds himself better off than the holder of the "long" bond, even though the latter may be better secured. One may even go further and say that the short junior bond of a sound railway is just now better than its senior "long" security. Undoubtedly this change, so unlooked for half a dozen years ago, is due to abnormal and unnatural events that have affected the price of all securities. But the unexpected change is there, is not likely to react for years and tends to shift the whole prospectus of railway bond financing. It is by no means unlikely that ere long and in rather high degree the new issued "long" railway bond may be discredited, relatively speaking, the "short" bond accredited and the short note more accredited still—this in order that the investor may avail himself of shifting market conditions. This strange, almost paradoxical, reversal has more comfort for the railway financier who a few years ago marketed his long time low rate bonds than for him who must market short high rate ones in the future. Incidentally it sheds its light on the fatuity of long time computation and forecast of conditions in the railway security market.

THE Massachusetts highway commission reports that since January 1 of this year there have been 710 automobile collisions, 479 injuries and 42 deaths. This bespeaks recklessness, intoxication or stupidity. The percentage of deaths and injuries to the total number of automobile users is very large. The *Boston Post*, commenting on this, says: "If that ratio were to be kept up steadily on the railways of Massachusetts the community would rise against them in a storm of indignation. Yet there need be no more accidents, proportionately, with motor cars than with steam cars. Common sense, caution, sobriety, respect for the force of a high-powered engine will do much. Nine-tenths of the automobile accidents are preventable." To say that drivers of motor cars in the streets and roads can be made as careful as locomotive enginemen on railways is to ignore some patent and important facts. Possibly we have no particular call to preach on the subject of safety on the highways—unless on the low ground that the railway man is naturally interested in the doings of everybody that is committing the same sins that he himself commits—but we will venture to remind our friends in Massachusetts that if they should conclude to rise in a storm of indignation at automobile recklessness they would find that the inculcation of common sense, caution and sobriety is a difficult task. With locomotive runners this task is satisfactorily accomplished only by the establishment of signal towers, manned by men clothed with absolute authority to stop any and every runner on the road, no matter how high-strung he may be; by constant and severe discipline of runners and by care in selecting men for the engines. We wish that we could think of some way to apply these regulative forces in the streets; for without them we are doomed to many years' experience of the present disgraceful conditions.

ANOTHER class of automobile items in which railway men take an interest is illustrated in the following:

Nahant, Mass., Sept. 11.—Albert E. Hanna and Mrs. Fannie Reed were killed when an automobile, in which they were riding, crashed into an electric light pole on the Nahant road early to-day. The tires on both rear wheels burst, and Hanna lost control of the machine while it was traveling at high speed. . . .

If a prominent citizen was killed by the derailment of a passenger train the public's demand for information would cover

all questions that the reporters and editors could possibly think of. Imagine these questions applied to this case (or to the case of the president of the United States if he had been killed on that 75-mile fast motor trip from the New Hampshire mountains to Beverly): What was the quality of those tires? Did they come from the shop of the best maker? Had the proprietor of the car been so penurious as to let them become too much worn? Were they carefully inspected at every stop? Was the steering gear in good order? Was the chauffeur's brain in good order? Had he a first class record for sobriety, experience, cautiousness and all the other virtues? Was he strictly complying with the by-laws of the town through which he was passing? Was he sleepy from having worked long hours? Was the proprietor of the car an oppressor of "labor"? And so on. It will, indeed, be a considerable time before automobile traveling will be as safe as railway travel.

AN organization to be known as the American Society of Engineer Draftsmen has been formed in New York City. Its aim is to improve the work done by draftsmen and to raise them as a class to a higher professional standard. Draftsmen employed in every branch of engineering work are eligible to membership. There is a place for such a society and it should be able to serve a useful purpose. There are plenty of draftsmen. The schools are turning out men fitted to enter this line of work in great abundance. But there are not enough good draftsmen, either in railway service or elsewhere. Probably the main reason is that those who are employed in drafting work almost always regard it as a mere stepping-stone to something better. As they hope and expect that they will not be engaged in it long, they usually do not try perseveringly to learn to do it as well as it ought to be done and can be done. Now, all draftsmen cannot become chief engineers. A good many are bound to have to spend their lives in subordinate positions. Those who are going to have to remain draftsmen will get along a great deal better as such if they perfect themselves in this line of work. The number who can now be found who are worth more than \$20 a week is too small. Whatever tends to improve the work of draftsmen as a class is going to increase the number who will be paid more than this amount, and we can see no reason why exceptionally good men should not be able, in course of time, to command a good deal more than this. While improvement of the work and elevation of the professional standard of draftsmen will enable them to command more pay as such, and also to get a great deal more personal satisfaction out of their duties, the acquirement of proficiency in this line can hardly, it would seem, tend to unfit a man for promotion. On the contrary, it is apt to attract attention from his superiors that will cause him to be put in line for promotion to the highest positions. Whatever this society does to increase the proficiency of draftsmen as a class, and better to fit the more talented of them for promotion, will be a valuable contribution to the progress of the engineering profession.

THE way that some of our up-to-the-minute state railway commissions get down to the last and finest details of railway operation is to the railway officer, in many cases, nothing less than astonishing, not to say annoying and absurd; but the action of the Corporation Commission of Oklahoma in ordering the railways of that state to loosen up a bit in their exclusiveness in the matter of vestibules will strike a sympathetic chord in the breasts of many travelers, including railway men. In Oklahoma towns of 3,000 population all of the entrances to a passenger train on the side next to the station must always be open when the train stops at the station, and in smaller towns, there must be one opening to each coach. It should always be made easy for passengers to enter the rear end of the hindmost car in which they are likely to find seats.

THE Interstate Commerce Commission has issued a classification for the operating revenues and operating expenses of carriers by water, making this classification effective January 1, 1911. The form prescribed follows in general the theory of accounting exemplified in the classification prescribed for railways. Operating revenues are divided into three general accounts; revenue from transportation, revenue from operations other than transportation and charter revenues. These general accounts are in turn divided into 13 primary accounts. Operating expenses are divided into five general accounts—maintenance, traffic expenses, transportation expenses, general expenses and charter expenses. The general accounts are in turn sub-divided so that there are 58 primary accounts in all. One of the interesting points raised by this order of the Interstate Commerce Commission is the question of how far the jurisdiction of the commission extends over water carriers. The Mann-Elkins amendment to the act to regulate commerce did not in any way change the power of the commission over water carriers. Section 1 of the Hepburn law provides that the act shall apply to any corporation or person engaged in Interstate Commerce partly by rail and partly by water. In the *Cosmopolitan Shipping Co. v. the Hamburg American Packet Co., et al.* (13 I. C. C., 266), the commission went at some length into a discussion of its jurisdiction over the carriage of freight by ocean steamship lines. In this case, the commission was asked to make an order retraining the defendants from pooling freight. The defendants entered demurer, claiming that they were not subject to the commission's jurisdiction. The commission held that only the water carriers that were subject to its powers were those on which it could enforce its judgment, and it found that in the case of overseas carriers it would be quite impossible to enforce judgments or orders of the commission and that Congress plainly did not intend to give it power over such carriers. Moreover, water carriers which form a service independent of any movement of freight by rail, are not under the jurisdiction of the commission. The returns, therefore, prescribed by the commission will be required only from those water carriers that operate between different ports in the United States; that is, either coastwise steamship companies, or lake companies, and which publish through joint tariffs in connection with some railway company. For instance, the Southern Pacific Company's steamship lines, which quote joint rates from New York, via New Orleans, to San Francisco will, it may be assumed, be required to keep their revenue and expense accounts in accordance with the classification now prescribed. Taken only in this restricted sense, the new orders of the commission are not of very widespread importance, although the publication of such statistics as will be required by the new classification will be of considerable interest, because, to our knowledge, no steamship company has ever made public such detailed accounts of its business as will now be required.

THE ILLINOIS CENTRAL CAR REPAIR SCANDAL.

WHEN the reports regarding the frauds in connection with the repair of cars belonging to the Illinois Central were first published, railway men received them skeptically. They were hard to believe, both because of the amounts of money said to be involved and of the prominence and previous good reputations of some of those against whom charges were made. But evidence has been piled upon evidence until whatever may be the results of the civil and criminal proceedings pending in the courts, there will be no doubt in the mind of the public as to what has taken place. Whoever may be the persons responsible for the conditions disclosed, no one can say anything of the conditions themselves but that they were equally disgusting and disgraceful. That a brazen conspiracy existed for a considerable time between certain officers and employees of the Illinois Central and certain car repair concerns to rob the stockholders of the Illinois Central has been established beyond a reasonable doubt. President Harahan deserves commendation for pushing the investigation of the frauds relentlessly and for instituting

civil and criminal proceedings against the alleged guilty concerns and persons.

While the details of the conspiracy and of its carrying out are being recounted in the courts, to the edification of a curious and sensation-loving public, is a good time for railway managers to consider the circumstances which gave rise to these frauds. They grew out of improper relations which had been formed by officers of the road—relations consisting in the ownership by them of substantial amounts of stock in companies which were paid to do certain work for the road. The road paid its officers to serve it to the best of their ability. It was their duty to get good work done for it at the minimum reasonable price. On the other hand, it was to their interest, as stockholders in the concerns which repaired the Illinois Central's cars, for these concerns to make the largest practicable profits. That they should get the work done for the road at the minimum reasonable cost and at the same time receive the maximum practicable dividends on the stock they owned in the car repair companies was impossible. Therefore, as men are apt to do in cases of that sort, they "made one hand wash the other." They used the offices of trust and responsibility, for the conscientious performance of the duties of which the stockholders of the Illinois Central were paying them, as means to filling their pockets with dishonest profits at the expense of the stockholders of the Illinois Central.

In one sense the conditions which have been disclosed were probably unique. We do not think that there is another railway in America in which grafting has prevailed recently on so magnificent a scale. But, in another sense, the conditions were not unique. The Illinois Central is not the only road with officers who have acquired interests adverse to those of its stockholders. The scandal in connection with the purchase of real estate for the Chicago & Western Indiana is still fresh in the public mind. When a railway officer owns a substantial amount of stock in a concern from which his road buys fuel or supplies, he is under a constant temptation, if he has anything to do with purchases, unfairly to favor that concern. Men of strict integrity and strong will firmly resist this temptation. But no man knows how strict is his integrity or how strong is his will until he has put them to the test. For his own protection the railway officer who has anything to do with buying, directly or indirectly, should keep out of concerns from which his road makes purchases. There are plenty of other places where he can invest his savings and get as large honest profits. If a railway officer wants to go into the supply business he ought to get out of the railway business. The chances are that he cannot honestly serve both the railway for which he is buying supplies and the company from which he buys them; and if he does almost nobody who knows of his dual connection will give him credit for honesty.

The matter, however, is not one for settlement by the individual consciences of railway men. The railways of the United States are conducting their business in the white glare of publicity. They will have to continue to do so. To get a square deal from the public, their managements must be, as Caesar demanded that his wife should be, above suspicion. If the officers of a railway are allowed to become interested in concerns from which the railway buys supplies, a relation is formed which is extremely apt, as past experience has shown, to lead to frauds against the railway. Even if this does not result, such relationships are adapted to excite public suspicion; and public suspicion regarding such matters quickly develops into conviction. When the public is convinced that there is dishonesty in the management of one railway it promptly jumps to the conclusion that there is dishonesty in the management of all of them; when you talk now to the "man in the street" you find that he is taking the case of the Illinois Central as typical. If the public believes there is an evil in the management of railways, it does not strike merely at that evil, but it strikes at the entire railway system of the country. The fact that in the past the railways used passes, and in some cases less veiled methods of bribery, to influence legislation, did not merely arouse a public sentiment that de-

manded abolition of and punishment for these abuses, but it created a public sentiment which demanded wholesale reductions of railway earnings.

The termination and prevention of all improper or suspicion-exciting relations between railway officers and employees on the one hand and railway supply concerns on the other is a matter which, it would seem, should receive the attention of all those who exercise final authority over railway management. Such relationships, so far as they exist, afford a most inviting field for the exercise of the art of the "muckraker;" and we may be sure, the Illinois Central scandal having now directed his attention to that field, he will soon be down upon it with great energy and verbosity. The wise railway officer and the wise railway management will arrange matters so that he will find as little material and as few characters for the "muckraker's" new "School for Scandal" as practicable.

THE ILLINOIS MANUFACTURERS' ASSOCIATION

THE statement filed by William Duff Haynie, counsel for the Illinois Manufacturers' Association, at the rate hearing in New York on September 12, had all the characteristics of the public effusions for which this organization has become famous. If the Illinois Manufacturers' Association should ever, anywhere, issue or file a statement which was fair and devoid of hypocrisy it would indicate unmistakably to those who have followed its past career that it was falling into senile decay. It is perfectly well known that a large part of the members of the organization do not approve of the course in regard to railway matters which it has taken. In spite of all their efforts, however, it continues to be dominated by professional agitators who, incapable of discussing railway questions and trying railway cases on their merits, habitually resort in such discussions and in the trial of such cases to Pecksniffian protests against evil-doing, and to deliberate misrepresentations worthy of the cheapest political charlatan.

The statement filed at the New York hearing is worthy of the Association's most ignoble traditions. It bitterly berates the railways for having impaired their earnings by unfair discriminations in rates. Now, there is no question that the railways have been in the past and are now guilty of unfair discriminations in rates. The statement of the Illinois Manufacturers' Association on this subject is entitled to special respect. It is expert testimony. Many of the worst discriminations of which the railways were guilty in the past, and are guilty now, have been brought about by the unscrupulous pressure and for the behoof of concerns belonging to that Association. For example, the International Harvester Company is one of the leading members of the Illinois Manufacturers' Association. One of the unfair discriminations of which the railways are now guilty is that of giving this organization a stoppage-in-transit privilege on machinery, for which there can be offered no respectable justification. Frank B. Montgomery, traffic manager of the International Harvester Company, is chairman of the committee which is handling these rate advance cases for the shippers. Mr. Montgomery is a very amiable and a very able man. But we think, in view of the favors his concern is getting from the railways, he showed less than his usual discretion in allowing counsel for the Illinois Manufacturers' Association to read into the record charges against the railways of unfair discrimination.

The International Harvester Company is by no means the only member of the Illinois Manufacturers' Association which has received and is receiving unjust favors from the railways. A number of the large concerns belonging to it own tap line railways. Since the Illinois Manufacturers' Association invites investigation of the subject of unfair discrimination, we respectfully suggest that the Commission might make inquiry as to the reasonableness of the divisions of the through rates that some of these tap lines are receiving. And since the Association complains that the railways have depleted their revenues by the payment of fines for rebating, we suggest that it show its good faith

by filing a statement with the Commission of all the fines that the railways have paid and of all that they ought to have paid for giving rebates to its members. This would not only be instructive as showing what the railways have been doing, but it would also be very instructive as indicating how big a hypocrite the Illinois Manufacturers' Association is.

Among the other charges made by the attorney for the Illinois Manufacturers' Association is that the railways have been guilty of the prevention of beneficial legislation. The railways, however, are not the only concerns that have opposed legislation which they thought might be inimical to their interests. For example, bills were introduced at the last session of the legislature of Illinois to limit the number of hours per day that employees should be allowed to work in certain kinds of manufacturing. A great many people thought that such legislation would be beneficial. The Illinois Manufacturers' Association differed from them, and, in consequence, maintained a lobby at Springfield during a good part of the session. The legislation was not passed—which shows that the Illinois Manufacturers' Association employs more effective methods for preventing legislation which it thinks will be adverse to its members than the railways do. There have been in circulation since many rumors about "jackpots" being made up at the Illinois capital, to prevent certain kinds of legislation. And we regret to say that the names of some very prominent members of the Illinois Manufacturers' Association have been mixed up in these unkind reports. The Illinois Manufacturers' Association, condemning others for opposing "beneficial legislation," is a fine imitation of Satan rebuking sin.

The statement read into the record at the New York hearing by the attorney of the Illinois Manufacturers' Association harmonizes well with the general course which has been pursued by the big shippers of the country, and particularly those belonging to this Association, both before and since the legislation was passed which gives the Interstate Commerce Commission power to reduce and to prevent advances in rates. Up to five or six years ago they resorted to every device that they could contrive and put pressure on the roads in every way they could think of to get secret rebates. The fact that large amounts of rebates were given shows how fruitful their industry was—for it should never be overlooked that no rebate was ever given by a railway which was not received by some shipper. Since secret rebating was abolished the large concerns have been engaged in depleting railway revenues in two ways. One of these has been to get unfair discrimination for their own benefit provided for by the published tariffs. The other has been to carry on constant agitation against alleged excessive freight rates. The railways, while seeking to readjust their freight rates on a higher level, are trying to eliminate some of the unfair discriminations by which the big shippers and big centers of industry are now profiting. Of course, the big shippers and big industrial centers cannot come out in the open and complain that they are being deprived of favors to which they are not entitled. Consequently they weep copiously in public places because, as they allege, the advances in rates the railways are trying to effect will place an undue burden on the public. Why, it may well be asked, do they always try to exemplify their solicitude for the public at the expense of the railways? Why did they not wait until the rates were advanced before greatly raising their prices? We think it is tolerably well known that every large concern in the United States is charging very much higher prices than it was ten years ago, although freight rates are no higher now than they were then. Since they already have raised them without any advance in rates, why should they raise them again, after an advance in rates? The obvious purpose of the buncombe which the counsel for the Illinois Manufacturers' Association has injected into the rate advance case is to prejudice public sentiment and cloud the true issue in these proceedings. It is to be hoped that the public will not be misled by it as it sometimes has been in the past by similar utterances.

DENVER & RIO GRANDE.

THE discouraging features of the annual report of the Denver & Rio Grande Railroad Co. for the year ended June 30, 1910, does not lie in the much-discussed cost of the Western Pacific, but is to be found in the heavy increase in transportation expenses of the D. & R. G. itself. This increase apparently indicates that the D. & R. G. is incapable in its present condition of fully taking advantage of the increased traffic which it is expected the Western Pacific will bring to it. The company earned gross in 1910 \$23,600,000, as against \$20,900,000 in 1909. Operating expenses last year amounted to \$15,800,000 and the year before to \$14,500,000, so that in 1910, after the payment of taxes, there remained operating income of \$6,960,000, as against operating income in 1909 of \$5,700,000. This in itself is not a bad showing compared with what other western roads may be expected to show, but the trouble is that the increase in operating expenses was disproportionately heavy in the cost of conducting transportation, while maintenance expenses, which on a road like the Rio Grande ought properly to be comparatively large, show only slight increases over the previous year of lighter traffic.

In 1910 transportation cost \$8,200,000, an increase over 1909 of \$900,000, or about 13 per cent. The total number of revenue tons carried one mile in 1910 was 1,352,600,000 tons, and in 1909 1,161,200,000 tons. This is an increase of about 16 per cent., and we find that it cost the D. & R. G. about as much in transportation expenses per ton to handle this increased business as it did to handle the business of 1909. For instance, the expenses for yard conductors and brakemen increased 15 per cent., the expenses for yard enginemen increased 15 per cent., the expenses for fuel for yard locomotives increased 11 per cent., the expenses for road enginemen increased 11 per cent., the expenses for fuel for road locomotives increased 11 per cent., and the expenses for road trainmen increased 12 per cent.

If the hope of the D. & R. G. to ever pay dividends on its common stock lay only in the increased traffic that the Western Pacific is to bring it, the company would first have to find some way of reducing its own operating costs so that this increased traffic may be handled at a correspondingly increased profit. The D. & R. G. runs through some of the most difficult railroading country in the United States. It was located at a time when engineers attempted to make the first cost of building their line low, even at the expense of future high operating costs. Moreover, almost the entire mileage of the D. & R. G. lies through mountainous country. Most of the other roads that cross the Rocky mountains have a considerable mileage either east or west of the mountains on which the materially lower operating costs tend to average down the expenses per mile of road and per unit of equipment. The following table gives the unit costs of maintenance. Since about a quarter of the total mileage of the line is narrow gage and there is a corresponding amount of narrow gage equipment, the accompanying figures show how expensive it is to maintain a road situated and built like the D. & R. G.

	1910.	1909.
*Maintenance of way, per mile.....	\$997	\$944
†Repairs per locomotive.....	3,156	3,312
" " passenger car	555	563
" " freight car	72	78

*Per mile of first and second track, the mileage of sidings and switch tracks not being given in the report, no account of the cost of their maintenance is taken, so that the figures here given, when compared with the unit figures of maintenance of way costs as given in these columns in reviews of other railway reports, is unduly high.

†This includes repairs only and does not take into account renewals, depreciation or superintendence.

To offset these high operating costs the D. & R. G. has a highly profitable local business such as is enjoyed by few other roads in the west. Moreover, from the nature of its tonnage, and from its almost impregnable position as regards competition, on a great part of its mileage it is enabled to charge high ton mileage rates, the revenue per ton per mile last year being 1.28 cents. This, however, is a decrease of .3 mills from the revenue per ton per mile in 1909.

Freight traffic statistics show that total car mileage was 102,261,757 in 1910 and 92,436,873 in 1909. Of the total in 1910,

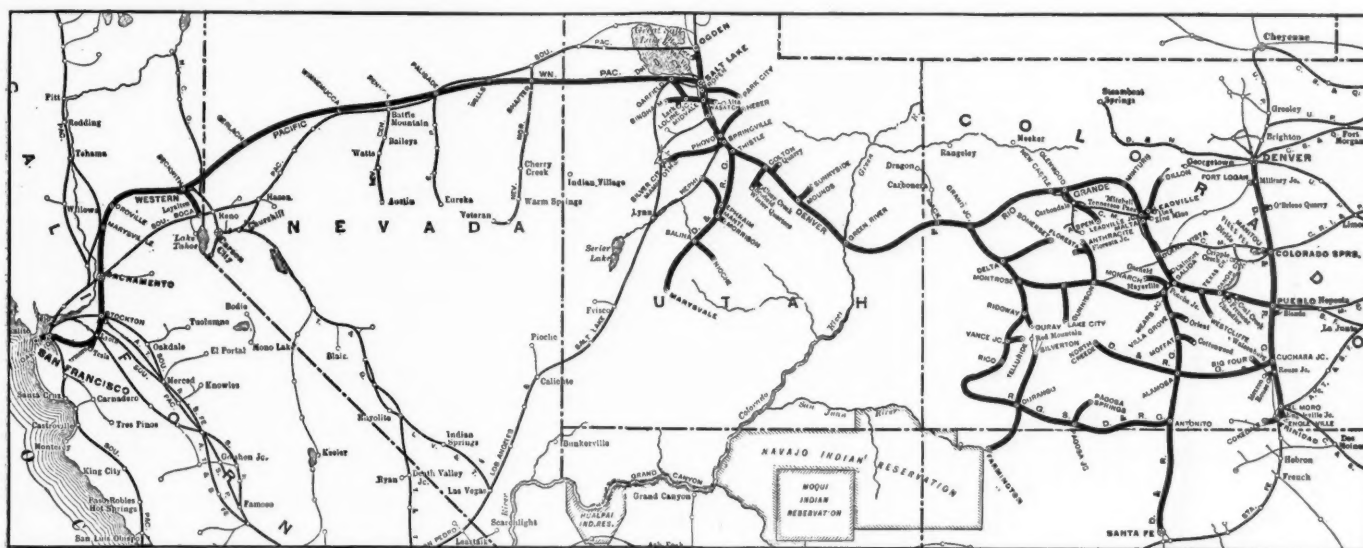
66,103,876 was loaded car mileage and 36,157,881 was empty car mileage; in 1909, 59,606,228 was loaded car mileage and 32,830,645 was empty car mileage. The revenue train load was 265 tons in 1910 and 249 tons in 1909; the average haul of each ton being 105 miles in 1910 and 108 miles in 1909.

Passenger revenue amounted to \$5,300,000 last year and to \$4,800,000 the year before; the revenue passengers carried one mile being 283,286,729 last year and 239,556,448 the year before. The revenue per passenger per mile was 1.86 cents in 1910 and 2 cents in 1909.

The increased tonnage of freight was quite evenly distributed between the various classes of commodities. The total tonnage in 1910 was distributed as follows among the various classes of commodities: Products of agriculture, 3.60 per cent.; products of

Western Pacific. In studying the statement of President Jeffery that over \$70,000,000 has been spent on the Western Pacific, it must be borne in mind that the interest charges on the \$50,000,000 first mortgage bonds have been charged, as is proper, to construction account. This interest from September 1, 1905, to March 1, 1910, amounts to over \$11,500,000, leaving less than \$59,000,000 paid for actual construction. This interest charge, of course, is actually as truly a part of construction cost as is the wages of steam shovel men.

After the payment of 5 per cent. on its own preferred stock the D. & R. G. last year had an actual surplus of about \$400,000 to the credit of profit and loss. The monthly statements given out by the company include in "other income" interest accrued on the second mortgage bonds of the Western Pacific. Presi-



Denver & Rio Grande and the Western Pacific.

animals, 1.14 per cent.; products of mines, 84.29 per cent.; products of forests, 2.33 per cent.; manufactures, 5.54 per cent.; miscellaneous, 1.68 per cent.; merchandise L.C.L., 1.42 per cent. It is interesting to note that of the total tonnage carried by the D. & R. G. in 1910, 44.70 per cent. was precious ore, the amount carried being 5,785,245 tons, comparing with 4,321,861 tons in 1909. Although furnishing nearly 45 per cent. of the total tonnage, the revenue from this tonnage amounted to only about 16 per cent. of the total freight revenue. On the other hand, bituminous coal, which furnished 27 per cent. of the total tonnage, or 3,523,334 tons in 1910, gave a revenue of \$4,000,000, or 23 per cent. of the total freight revenue.

Besides the hope that the D. & R. G. stockholders may benefit directly through increased traffic on their own line due to the full operation of the Western Pacific, they may hope to benefit indirectly through the earnings of the Western Pacific paid to the parent company in the shape of interest. The D. & R. G. owns all of the \$50,000,000 Western Pacific stock, which it carries at a book value of \$4,284,953, and \$25,000,000 Western Pacific second mortgage 5 per cent. sinking fund bonds, carried at a book value of \$18,750,000. At present the D. & R. G. is not receiving any income from this investment. The Western Pacific has spent, exclusive of accrued interest on second mortgage bonds, \$70,438,302 to June 30, 1910. This money was raised as follows: \$48,008,145 was the proceeds of the sale of \$50,000,000 first mortgage 5 per cent. 30-year bonds of the Western Pacific; \$18,784,333 was the proceeds of the sale to the D. & R. G. of \$25,000,000 second mortgage 5 per cent. bonds of the Western Pacific, and \$4,606,412 was advanced by the D. & R. G. under contract of June, 1905. The amount advanced by the D. & R. G. to the Western Pacific was raised by the sale by the D. & R. G. of \$32,944,000 first and refunding mortgage 5 per cent. bonds, from the proceeds of which the D. & R. G. used for its own capital purposes \$7,000,000 and advanced the remainder to the

parent Jeffery states in the annual report that this interest was neither earned nor paid by the Western Pacific, and that it is properly a deferred asset. Considerable criticism, especially in Wall Street, was directed against the company because it included in its monthly statements this accrued interest on Western Pacific second mortgage bonds, and President Jeffery is quoted in a newspaper article as defending the company's action on the ground that the Interstate Commerce Commission rules for monthly returns required the inclusion of this accrued interest in other income, whether it was paid by the Western Pacific or not. This defense is probably technically sound, but if any real desire on the part of the management had been manifest to be frank with its stockholders and the public, it would have been the easiest thing in the world to have put a note against the words "other income" in the monthly statement of earnings, explaining that it included a bookkeeping account of interest accrued which the Western Pacific is not at present either earning or paying. Certainly the annual report is frank enough, and no attempt is made to disguise the actual financial position of the company. As was pointed out at the beginning of this review, the financial showing of the company is good rather than disappointing. Last year the Western Pacific was in operation so short a time and to such a limited extent that its effect on the D. & R. G.'s earnings must have been comparatively slight, so that while the Rio Grande has been paying the highest charges that it is likely to have to pay, it received last year the minimum benefit from its new venture.

The Western Pacific, as a piece of construction, has been described in the *Railway Age Gazette* of March 19, 1909, page 563. Its traffic possibilities are hard to forecast, but since it parallels the Southern Pacific for a considerable distance, it may be assumed that if it is able to get its share of business, this business should be highly profitable. Since the close of the fiscal year the Western Pacific has paid out of its own treasury September

coupons on its \$50,000,000 first mortgage 5 per cent. bonds. If this is an indication that the Western Pacific is now able to take care of its own first mortgage bonds from earnings, the security holders of the D. & R. G. may well feel that they can afford to wait even a considerable time for the payment of interest on the second mortgage bonds; in other words, apparently if the Western Pacific is now able to stand on its own feet in so far as paying its current obligations to outside parties is concerned, and no longer act as a drain on the resources of the Rio Grande, the Rio Grande ought to be well able to take care of itself until such time as the Western Pacific can begin to repay its family obligations.

The following table shows the operations of the Denver & Rio Grande in 1910 and 1909:

	1910.	1909.
Average mileage operated	2,541	2,534
Freight revenue	\$17,806,613	\$15,163,254
Passenger revenue	5,275,895	4,784,418
Total operating revenue	23,082,508	19,947,672
Maintenance of way	2,890,602	2,530,107
Maintenance of equipment	3,804,120	3,572,327
Traffic	511,108	467,269
Transportation	8,234,207	7,294,231
Total operating expenses	15,501,954	14,858,574
Taxes	823,515	762,824
Operating income	6,955,952	5,704,712
*Gross corporate income	9,646,667	7,084,129
Net corporate income	4,161,012	3,056,948
Interest on Western Pacific second mortgage bonds not paid and therefore deducted.....	1,152,845
Dividends	2,488,990	2,288,990
Betterments and new equipment.....	361,714
Surplus	399,177	286,714

* Includes the amount due on Western Pacific second mortgage bonds but not earned or paid.

NEW BOOKS.

The Mann-Elkins Act. Notes and Comments by Prof. Frank Haigh Dixon.

The amendment to the Interstate Commerce Act, which was passed June 18 and which has just gone into effect, is the subject of a thorough and careful analysis by Professor Dixon, of Dartmouth College, in the *Quarterly Journal of Economics* (Cambridge, Mass.), for August. Professor Dixon is a most thorough and careful student and a lucid writer; and his review of this law shows that he is perfectly familiar with the federal laws relating to transportation as they existed before, as well as with every word of the discussions in Congress and the newspapers which attended the passage of the Mann-Elkins bill. Professor Dixon is also a fair and judicial-minded critic; but he seems to think that the commission will have little trouble in carrying out the herculean task of examining all new freight tariffs and passing on their reasonableness before they go into effect. He looks upon this provision of the law as fair, because it only gives to the shipper the same right that the carriers have long possessed. Theoretically, everybody must agree with this apparent establishing of justice and equity; but as a practical matter the question whether or not the "shippers" who object to rate increases are going to be any less numerous than the flies of Egypt is what oppresses the railway manager.

American Street Railway Investments. Issued annually in connection with the *Electric Railway Journal*. 1910 edition. Published by the McGraw Publishing Co., New York. 490 pages, 9x13 inches. Cloth. Price, \$5.

The 1910 edition of this standard manual of information on street and interurban railways shows the gradual development in number and importance of electric street and interurban railways and contains detailed information in relation to the earnings of the various companies which have supplied statements for publication. This information has been supplemented in many cases by traffic statistics of passengers carried and results per car mile. Car hour statistics have also been included where obtainable. With the general broadening of powers of state commissions to require more detailed returns from the street railways, the information that is available has very considerably increased within the past few years, and the Street Railway Red Book shows a correspondingly greater volume of statistics. The book is a recognized necessity for any one making investigations as to street and interurban railway properties.

Letters to the Editor.

STATIONS KEPT CLEAN BY WIDE-A-WAKE SUPERINTENDENTS.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The able president of the Baltimore & Ohio, you inform us, has started a campaign for clean stations. In repeating this, you set the seal of your approval on the proposal to accomplish the desired purpose in part by means of traveling inspectors, who will presumably instruct, warn, check and report. Are you quite sure that the appointment of the inspectors will not endanger the success of the foray against uncleanness? After all is the division superintendent, who is charged with much more responsible and delicate duties, not quite capable of banishing the flies, the dust, the cinders and the vile smells? If the dapper young man with the ruthless unwinking eyes and the highly sensitized olfactory nerves is to be a permanent feature of the organization, will the superintendent not leave to him the unexhilarating task of satisfying commuters and railway commissions? After all the superintendent is paid to look after such details, and our organization gives him the facilities for so doing. Then why not make him do it? The supervision of roadbed, equipment, and traffic requires that he should spend a large portion of his time on the line; he has trainmasters, roadmasters, bridge and building inspectors and engineers to act as eyes for him over his district when he is at headquarters; and there is really no reason why he should not be kept informed of the condition of every station and every other building.

There is one railway in Western Canada which is famed for the neatness of its stations and the generally well-kept appearance of the property. There are no special inspectors traveling around, poking in the ash-heaps and the water closets. The superintendents are required to keep their districts presentable, and they do. The secret of it all is personality. The general manager of that line might be called a crank on certain things, and he is a thirty-third degree crank on neatness. He goes over the line frequently, and no detail about the appearance of the property is permitted to escape him. A superintendent knows that his chances of promotion will be seriously affected by the appearance of the equipment, the roadway, the bridges and the buildings on his district. Nor is he required to make bricks without straw. At the larger stations, janitors are authorized and the most modern sanitary appliances are installed. At the way stations, a monthly allowance is made to the station agents for the cleaning of the building; the buildings are regularly overhauled and repainted and scavenging work is arranged for frequently and regularly; prizes are authorized for station agents who cultivate flower gardens and reach the high water mark of attractiveness. The superintendent examines the stations and freight sheds closely as he passes over the line, and when he is at headquarters the trainmaster or some other district officer is on hand to check any tendency to sluttishness. The result of it all is six thousand miles of well-groomed track, and an unending succession of tastefully kept stations.

Is this not possible on any system? Undoubtedly, yes. All that is needed is general enthusiasm; and on the part of the general manager, wise discrimination in apportioning praise and blame, combined with a willingness to supply ungrudgingly the wherewithal to do the work. Is it not better to handle it through and by the superintendents, than to weaken their sense of responsibility and their control of the local agents, by delegating the work to itinerant "white wings" who will weary everybody with unpractical suggestions and inane comment?

STAFF OFFICER.

[This is very refreshing; but, alas! all this good news comes from Western Canada, which is 2,000 miles from those Eastern cities where we have observed station "toilet" rooms full of flies to offend the eye and—other things to offend the nostrils. The reader will, no doubt, readily guess what road is here referred to.]

to. If he cannot, we would suggest that he exercise his mind on one of those puzzles which appear in the yellow journals, such as "Ch—c—go; What prominent city?" There is no disagreement between our correspondent and ourselves. He contemplates an inspector who will *instruct, warn, check and report*. He should cut out the first two of those four words. On a road where the superintendents keep their stations in first-class condition, the inspectors' reports would tell, not how bad, but how good. We have not been in Western Canada lately; but, considering railway stations generally we cannot drive away the thought that many superintendents who are classed 98 per cent. perfect, fail to cure this last and worst evil which started this discussion. Mr. Paine's comparison with the Augean stables was not unduly hyperbolic.—EDITOR.]

THE RULES OF INTERCHANGE.

September 11, 1910.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Executives of American railways are taking note of the effect which rules of interchange produce on the terminals. Much discussion is taking place on the subject of "Run, Repair or Transfer." The term is sometimes used interchangeably with "Twentieth Century Inspection." It is startling how many notions are extant as to what either term implies; by some the principle involved is given an extremely broad meaning; by others an equally narrow one. Although the understanding of what is meant differs so greatly, almost everyone seems to assume that no difference of opinion exists as to what the terms cover. As a result those who think they agree may disagree very seriously, and those who think they disagree may after all view the matter in precisely the same light as their supposed opponents.

The term "Run, Repair or Transfer" is specific. It can mean nothing more and nothing less than that when one railway offers another a carload of freight the freight shall be received and forwarded toward its destination; and that unless the freight can be forwarded in the car containing it without first making repairs to the car, repairs shall be made; and if that course will not permit the load to go forward in the original car, then the load shall be transferred to a car that is suitable. The underlying principle of the "Run, Repair or Transfer" idea is that railways, being in the transportation business, should transport freight when freight is tendered by one railway to another for transportation; that the railway to which freight is offered is in a far better position to determine whether the vehicle containing it is safe to run than is the railway whose handling of the freight is at an end.

It is frequently pointed out that previous to the installation of through car service, the railway receiving freight from another, after deciding what car to use, stowed the freight in the car, yet the receiving railway now undertakes to say that the delivering railway shall put the equipment in shape to suit the receiving railway's real or fancied needs.

Another feature that is being pressed not a little is that when a railway joins in the issuance of a joint tariff it is obligated to take freight that is offered by any railway party to the tariff, and that the car which contains the freight is not a point at issue. Others take a different view. It is a point for the lawyers to decide, perhaps, yet just common, ordinary horse sense should be sufficient. One thing is certain: Since rules have been formulated defining responsibility as between the delivering railway and the receiving railway for cost of repairing the vehicle or transferring the load, whichever is necessary, the matter is very much simplified.

The term "Twentieth Century Inspection" is less definite, more inclusive; and if "Run, Repair or Transfer" is suited to twentieth century needs and if the practice of delaying business, while quarreling over the condition of the vehicle which contains it, is a relic of by-gone years, then it is fitting at this time to use the two terms interchangeably as is being done.

Some prominent officers hold that the rejections so deeply

deplored by "Run, Repair or Transfer" advocates are greatly exaggerated; that they are in fact very few in number. If that is so then let it be hoped that even the few delays will be stopped. But it is not so. The rejections go merrily on and little is being done to avoid them. The rules permit it.

To whom shall we look for improvement? Clearly no individual can bring it about; neither can an individual railway; whatever is done must be done by the railways through associating themselves together.

Shall we look to the American Railway Association? No. The only binding rules it ever made relate to car per diem. True, the American Railway Association, in November, 1908, suggested that as an underlying principle the status of the lading in or on a car shall be considered the guide and not the vehicle in which the lading is transported, but a principle is one thing and a practice is quite another. There is thus far nothing binding about this principle that the American Railway Association has laid down.

Shall we look to the Association of Transportation and Car Accounting Officers? That association makes no rules at all. True, it recommends, but it has not reached the point where it has had the courage to even recommend rules relating to the interchange of freight and cars.

Shall we look to the American Association of Railroad Superintendents? Doubtless that association would like to do its part in remedying the trouble, but its rules, too, are recommendatory and it cannot even recommend in a matter so clearly and definitely affecting all superintendents without offending somebody.

Shall we look to the American Association of Freight Agents? That association also only recommends. Its influence has been thrown on the side of improved service in a way that should have made a deep impression. And it has made an impression, but it was about as deep and passed away about as quickly as to insert one's finger into the sea and then remove it.

What a situation when serious men engaged in a serious work cannot make any more headway in a phase of transportation, which clearly concerns them in their effort to please the patrons!

Shall we look to the Master Car Builders' Association? This is the association that is empowered to do things. Nothing recommendatory about M. C. B. rules of interchange. They are binding. Those of us who are members of it can tell the agent, the superintendent, the manager and even the president where to "head in," and they quickly do so when we speak through our rules of interchange.

But the M. C. B. Association at present is opposed to the principle of "Run, Repair or Transfer." And why? Is it because the others favor it? Rather, is it because each road fears it is the only one that can be counted on to "play fair?" Each opponent of "Run, Repair or Transfer" holds sacred his right to reject traffic. No traffic manager, individually or through his association, can move a pound of freight for a patron without requiring payment for the service. But the car inspector, acting under the rules of interchange, can require his company to move a whole carload or trainload for that matter, without a cent of charge. And move it, too, in a direction which damages the patron.

James J. Hill is quoted as saying that "it is no more disastrous to have the banks close their doors than to have the railways choked." He is also quoted as saying that "the problem of terminals is the greatest problem of the country, the problem of transportation agencies, of financiers, of the communities directly affected and of all the industries that depend directly or indirectly upon cheap and speedy carriage for the commodities which they buy and sell. It is a problem for everybody, since probably not one business man in the whole country would fail to feel the disastrous effects if it were to be neglected for the next five years as it has for the last ten, and to blight every form of activity by paralyzing the whole trade." If Mr. Hill should some day undertake the study of the rules of interchange, it may be safely stated that when he has completed it there will be "something doing."

When a member of a political faith thinks the party of his choice does not promote his ideals, he is at liberty to transfer his affiliations or start a new party; not so with a member of the association that frames the rules of interchange. The only recourse that any member of the M. C. B. Association has lies in pointing out that new conditions have arisen and that ideals are changing in the conduct of transportation. I am, then, well within my rights in calling attention to the fact that for years a very few have so controlled the association as to prevent the "Run, Repair or Transfer" question even coming before the convention, and I protest against having it further throttled in committee room. I am the association's friend when I urge its members and its committee to live up to its great opportunity. Individuals die, no matter how progressive they may be. Associations escape this experience so long as their ideals and their work keep pace with the needs of the times.

AN INSURGENT MASTER CAR BUILDER.

WEAK POINTS IN THE LATEST STANDARD CODE.

Nashville, Tenn., September 6, 1910.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I beg leave to call attention to one defect and one serious omission in the latest revision of the standard code of train rules. The rules will never be sound until the question of clearance as between inferior and superior trains is settled, and settled right. The code seems to admit of a variation of thirty seconds a week in watches; and I know from experience that watches do vary more than that. No watch, however fine, can be depended upon to keep exact time in service, because subjected to such unusual usage. In jumping on freight trains men often permit their watches to strike the sides of cars, and some times train and enginemen come in contact with strong magnetic currents, or fail to wind watches regularly because they have no regular hours of duty. While cases cited above may not be common, it is a fact that conductors and enginemen have carried and used watches which were more than a minute slow or fast.

In view of this fact, it must be evident to any officer that code rule 88 is unsafe. One trouble in getting it revised has been that operating officers look upon anything less than five minutes as too insignificant. I would recognize the necessity for making a sharp distinction between passenger and freight trains, providing less clearance for the former than the latter, as between each other. I would change rule 88 to read, "At meeting points between first class trains, the inferior train must clear the main track at least two minutes before the leaving time of the superior train." And I would change rule 89 to read, "At meeting points between all trains, except first class trains, the inferior train must clear the main track at least five minutes before the leaving time of the superior train." The rules provide for the inferior train pulling into the siding. This is not as clear as it should be made in order to make the rule invulnerable in the eyes of some jurymen. I would provide a separate rule, preferably rule 87, to say how inferior trains should take siding, thus avoiding repetition, and would word it as follows, "Inferior trains must keep out of the way of superior trains in the opposite direction, clearing their time as required by rule, and in meeting them must, when practicable and not otherwise directed, pull into the siding at the nearest end. If necessary to pass this point to pull, or to back in, the movement must first be protected, as prescribed by rule 99."

"At meeting points between extra trains the extra in the inferior time-table direction must take siding in the same manner, unless otherwise directed."

It may be contended by some that to impose a clearance of two minutes upon an inferior passenger train would be burdensome; that it would require too many helping orders to be given. My experience has been that when time is at all fast passenger trains, even when on time, must be helped to their meeting point with superior trains. However that may be, the rule should be sound from every viewpoint.

Another defect in the code may be found on page 48, example 9, Form F. The code reads, "To pass one section by another, the following will be used:

"(9) Engs. 99 and 25 reverse positions as 2d and 3d No. 1 H to Z.

"Under (9) Engine 99 will run ahead of Engine 25 'H' to 'Z,' and, if necessary, both engines will arrange signals accordingly. Following sections, if any, need not be addressed."

I would change that form to read as follows:

"To pass a section by one or more, a form similar to the following will be used:

"(9) C & E 2d and 3d No. 1, H.

"Engs. 99 and 25 display signals and run as Second and Third No. 1, H to Z. Eng. 99 pass. Eng. 25. Exchange orders.

"This order supersedes only the former instructions creating the two sections. Following sections, if any, need not be addressed. If third section be the last, the words 'display signals and' will be omitted. If the sections addressed hold no unfulfilled orders, or parts of orders, the words 'Exchange orders' will be omitted.

"Conductors and enginemen addressed must make a careful and complete exchange of orders, comparing with each other after having done so and, under their new section numbers, must use only such orders as are addressed to their sections after having made the exchange."

Notice that the code example may be used only to pass a section next ahead while in practice it often is desired to run a third section by the first and second. The form I offer will meet every requirement. Also note that the code rule fails to say what disposition shall be made of existing train orders. Must the trainmen be depended upon to properly arrange green signals and exchange orders, or is it the duty of the despatcher to re-issue orders? Some roads in adopting the latest code have, upon my calling attention to this oversight, provided for an exchange of orders by the crews, but they have given the despatchers no form for passing a third section by the first and second.

Give us another revision of the rules and probably they will stand the test for all time. There are other errors to which I might call attention.

H. W. FORMAN.

WHO ARE THE STRONG MEN?

August 26, 1910.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I want to discuss some thoughts which occur to me since reading the editorial headed "Managers, Superintendents and Despatchers," in your issue of August 26.

Having occupied the three positions named in the heading of your article, I can appreciate, better than probably might otherwise be the case, some of the points to be considered. The article is quite right wherein it says, "One of the greatest needs of the American railway world to-day is that kind of general manager who will take as much care in selecting strong men to fill the position of superintendent as he does in cutting down his percentage of expenses to receipts," etc.

Here is the crux of the situation; and the difficulty, as I see it to-day, is that of mistaking who are the "strong men." Not so many years ago, the "strong men" in charge of railway operation were those men who, by natural ability, energy and force of character, pushed themselves ahead of their fellow employees, and, attracting to themselves that attention which naturally came to them by reason of such qualifications, they were placed in charge of properties, and, as a rule, made a success, and it was and is such men as these who made the Pennsylvania Railroad, the Chicago, Burlington & Quincy, the Chicago & North Western, the Chicago, Milwaukee & St. Paul, the Lake Shore & Michigan Southern, the Norfolk & Western and many others which I might name, famous and prosperous, and great properties. But these men are rapidly going to the rear, either being on the retired list and pensioned or perhaps dropped out altogether, and in their places we are finding too often a "made-to-order" variety of superintendent whom nature never intended to fill the position

which (as a misfit) he is holding. By a "system," and because possessed of a diploma, he is, by divine right or otherwise, fitted to hold the job formerly held by men who earned their spurs.

I believe it was Napoleon who said, "Let him wear the spurs who earns them," and whose unquestioned success was because of his recognition of ability when found among the "common men." Remove incentive from the great mass of employees, and you remove the greatest impelling force for upbuilding of the property. If, as I notice, the Pennsylvania Railroad proposes hereafter, in addition to its "made-to-order" superintendents, to have "made-to-order" signalmen by a course of schooling which will make rulers of the fortunate young men who, in three years, will become masters of the mass of operatives who are to-day doing the trick satisfactorily and faithfully, what hope is there for this mass of toilers? They see at once that "once a tower-men always a towerman," and that any effort on their part, or attempt to advance themselves, will bring nothing more than perhaps change to another and more difficult tower, while every year there will be a new crop of rulers brought on to supervise those who have only had the advantage of learning practically what the other has to learn theoretically.

A recent illustration comes to mind. A roadmaster on a Western road—I might say the best trackman I have ever known, and who can do any and every job of maintenance and construction that can be suggested—wanted to quit because a young engineer had been promoted and placed over him as engineer of maintenance of way. The young engineer had a smattering of maintenance knowledge picked up by some process of special schooling, and he attempted to give this veteran trackman instructions, some of which were so absurd as to disgust and drive all of the spirit out of this faithful and efficient trackman.

The article referred to might be supplemented by one dealing with the question of "Just *who* are the strong men, and what *makes* them strong men?" My impression of some promotions I have seen is that "imitation men," instead of "strong men," are the rule.

Now, why is it that some of these "strong men" whom "system" has made superintendents are not passed through the degree of train despatcher? I can answer:—For the very good and sufficient reason that they would know as much about train despatching as a hog knows about Sunday, and would get about as far in moving traffic as I might get in attempting an amputation, or an operation for appendicitis. Yet, if you will look about, you will find that many of the "strong men" in charge of operating railways to-day came up as train despatchers and trainmasters, and became superintendents and managers. Under a "system" these men have notice served on them that that avenue of promotion is closed hereafter.

Under a "system" of special schools for signalmen, or superintendents, or master mechanics, such men as Mudge of the Rock Island, Brown of the New York Central, Harahan of the Illinois Central would still be kept laborers; Johnson of the Norfolk & Western might still be a locomotive engineer; Nick Maher, a train despatcher; Wickersham, a station agent; Willard, a locomotive engineer; Underwood a brakeman; Thomas, a laborer; Moon, a telegrapher; my poor friend Hurley, a station helper; Gardner, a train despatcher; Gruber, a telegrapher; Sullivan, a machinist; and thus I might go on.

The trouble is that men who themselves have not climbed the ladder, except from the bottom to the top rung in one jump through a special "system," cannot put themselves in a position to see, in any other light than the same avenue which they used, a chance for other men.

Again I say, let him wear the spurs who earns them. Let every private carry a marshal's baton in his knapsack. Remove the barrier of a "preferred class" from the possibility of promotion by the mass, and we may get back to the condition where "strong men may be found for places as superintendents," and the last paragraph of the editorial, which says, "The feeling that they have a hard fate in not having a better body of men to select from," will have its answer.

VICE-PRESIDENT.

THE STORY OF AN ARBITRATION.

BY CLARENCE DEMING,
Associate Editor, *Railway Age Gazette*.

There have of late been not a few arbitrations of the transportation companies with their employees. While the outcomes have been published duly and aroused comment and criticism, there has rarely been an exact public report of the arbitration proceedings and almost never any statement as to what may be called the functional doings of the arbitration boards. Seen from this wide viewpoint, the arbitration in Connecticut just ended between the dominant street railway corporation of the state and its conductors and motormen may have some fresh suggestions of value at a time when arbitration, as a solvent of labor disputes, is an expanding force. In the Connecticut case there have also been certain elements the more informative because they have been somewhat unique.

The New York, New Haven & Hartford is the parent corporation which, through its holding company, the Connecticut Company, owns or controls nearly all of the street railway properties of the state. It has somewhat more than 81 per cent. of the total primary mileage of the state; about the same proportion of the primary and secondary mileage (second track and sidings) reckoned together; and its gross earnings are about 90 per cent. of the total. The steam corporation actually, though not technically, controls several hundred miles of street railways in Massachusetts and also owns or controls practically all the Rhode Island trolleys. In connection with the Connecticut arbitration, this outside ownership of trolley properties by the New Haven company is of importance, as the arbitration finding on wages, bear on the rate in Rhode Island and to a somewhat less degree in Massachusetts. Moreover, the policy of the Connecticut corporation involves the same wage rate for its motormen and conductors, whether they are union men or not. These two groups in the employment of the Connecticut Company number about 1,600 men, which would probably rise to nearly or quite 3,000 were those in Massachusetts and Rhode Island to be included. The Connecticut arbitration thus had pretty large financial scope and its import was not diminished by the fact that it was the first of its kind in the state.

THE ARBITRATION CONDITIONS.

The antecedent conditions and certain important negotiations which led to the arbitration may be better reviewed later as part of the sworn testimony at the hearings. It will suffice at this point to say that the articles of agreement for arbitration signed by the representatives of the men and of the Connecticut Company provided that each party should choose an arbitrator and the two arbitrators a third, the three to constitute the board and the finding of the majority to be binding for a period, of not more than two years, to be fixed by the board; that the arbitrator for the men should be paid by them, the arbitrator for the corporation paid by it, and the general expenses and charges of the third arbitrator should be shared jointly. There were minor provisions for death or disability and for the sessions of the board. As to the wage scale, the contention of the company in the arbitration articles was for the former scale, which, while varying locally, may be described as the 21-25 scale—that is, from 21 cents an hour for the first year of service up to 25 cents on the sixth year and thereafter. The demand of the men was for a "flat" rate of 30 cents an hour and time and one-half for overtime in place of the old additional five cents an hour. It may also be stated here that a few weeks previous to the arbitration, and beginning April 9, the company had posted and put in operation an increased wage scale varying by years from 21½ to 26 cents an hour. This new wage scale, posted after negotiations with a committee of the men, had not been revoked.

The men chose as their arbitrating representative David E. Fitzgerald, of New Haven, who as attorney had represented on previous occasions the labor unions in the courts. The Connecticut Company chose the writer as its representative, but with

the express proviso on his part that he should act as arbitrator pure and simple, and not as agent or attorney of the company. In the important, if not vital, matter of choice of the third arbitrator the two initial arbitrators were in full accord and their system may be worth its description, as a suggestion at least for other proceedings of the kind.

HOW THE THIRD ARBITRATOR WAS CHOSEN.

A somewhat unique plan was adopted. It was agreed that it was desirable that the third arbitrator should be chosen from Connecticut, and that he be a man familiar with local conditions. Next the state community was divided into groups and a process of exclusion adopted in order that, as soon as possible—if the mining phrase may be pardoned—"pay dirt" might more quickly be reached. First, to be excluded, necessarily, were all persons having official relations with labor organizations on the one hand and public service corporations on the other hand. Next on the excluded list were persons in politics and public life as not being disinterested parties. The clergymen were excepted for two reasons—sympathy with the character of their congregations and as even more likely to be swayed by sentiment than the facts. The medical profession went out as unrelated to business, large employers of labor in the factories and cognate occupations on account of prejudiced relations with the open or closed shop, and the mercantile class as liable to undue feeling in the matter of freight rates. Finally, a review of the list of Connecticut attorneys-at-law showed practically none of eminence in the state not doing more or less corporation business. With the lawyers out, the available groups were reduced to two—judges of the higher courts of the state and the group of "executive educators," including college presidents, deans of departments and headmasters of large preparatory schools, to whom were added professors of political economy.

The list of seventeen Connecticut judges was used first and resulted in the choice for third arbitrator, from a residual group alphabetically arranged, of Judge W. S. Case, of Hartford, a judge of the Superior Court, who accepted the place, one judge having previously declined it. At a later meeting of the organized arbitration board it was decided that the hearings would be open to the public and that the case for the men should be presented first. The representatives for the Connecticut Company at the hearing were Calvert Townley, vice-president, and J. K. Punderford, general manager of that corporation, and Vice-President E. G. Buckland, of the New York, New Haven & Hartford, the parent corporation, who conducted the case. The representatives of the trolley men were Razin Orr, international treasurer of the Street Railway Association of Trolley men; Charles Minnix, president of the State Conference Board; Roger Lehey, treasurer of the State Conference Board, and W. D. Mahone and W. B. Fitzgerald, of the Amalgamated Association of Street and Electric Railway Employees, the latter in primary charge of the case for the men.

THE EVIDENCE.

Mr. Fitzgerald, for the men, first put in signed schedules from business houses showing the increased prices of provisions since 1907, the date of the last increase of wages previous to the increase posted April 9, 1910, followed by letters from other business houses to prove that during the three years the prices of furniture, boots, shoes and rubber goods increased, as well as provisions. He also introduced several magazine articles and later offered some hundreds of cards signed by the trolley men to prove the increase of rents, and letters from officers of other labor organizations to show the high wages of their men as compared with the trolley men—pay of locomotive engineers, firemen, trainmen, bricklayers, carpenters and others. Vice-President Buckland, for the company, while admitting a certain rise of commodities, countered as to the amount by comparative lists from the newspapers in 1907 and 1910, government and trade reports, advertisements of dealers, testimony of real estate men to show slight or no rise in rents in New Haven, and evidence from contractors to prove the long apprenticeships and precarious work of the men in the higher paid voca-

tions. Other testimony or exhibits made by Mr. Buckland showed 598 men on the company's waiting list of trolley men and the wage scales of 104 street railways east of Buffalo and north of Pittsburgh, nearly all of which were below the scale of the Connecticut company, and some of them far below. Much evidence on both sides was offered on the subject of the trolley runs—on the side of the men to show undue disparity and reduction in average wages; on the part of the company to prove the necessity of difference in the runs and their substantial fairness.

Mr. Fitzgerald claimed high earnings and prosperity of the company. Mr. Buckland answered with exhibits and testimony of auditors during 1909 to prove net earnings of but 2½ per cent. on the "investment" of the parent corporation. Unfortunately for his plea, underlying securities assumed by the parent company were counted in this investment after interest on them, earned and paid, had been subtracted from earnings over cost of operation, and the net earnings over all were then ratioed to both the debt and advances for improvements—some \$9,000,000 of the latter, and the whole, amounting to some \$36,000,000. Contingent and remote liability was treated as direct investment and as if it were capital stock. This error, due to a bookkeeping technicality, vitiated the figures and left the actual condition of the Connecticut Company quite nebulous—particularly as in its own return and in that made to the Connecticut Railway Commission, earnings over and above operation are transferred to the steam (parent) corporation's account and there lose their identity. In consequence, the arbitration board, at its conference following the hearing, was forced to expunge this evidence.

A VIOLATED COMPACT.

But a matter which, in the opinion of the arbitrator representing the company, left all economic and fiscal issues in the shade was the evidence of a violated compact. Stated as briefly as possible and ignoring minor details, this vital testimony was as follows: In March, 1910, the trolley men asked an increase of pay and placed their demand in the hands of a committee of 13, representing the 11 divisions of the system. The committee met Vice-President Townley and General Manager Punderford in conference and presented a high wage scale, which was rejected by those officers. Next came a wage scale offered by Mr. Townley. It was reshaped by the chairman of the committee, and, after some discussion, accepted by that body—Mr. Townley polling the committee and receiving not only its collective and individual assent, but a promise to support it actively when referred back to the men in their local divisions. Of the 11 local divisions 9 voted in favor of the scale, several of them unanimously, only the New Haven and Norwich unions dissenting. The company, after some postponement asked for by the committee's chairman, posted the advance scale, that of April 9, heretofore referred to. Suddenly, for causes not fully brought out at the hearing, but evidently outside influence, the compact was violated; the committee went back to the officers of the company and asked a yet higher wage scale; on its refusal they appealed to President Mellen, who charged them with bad faith and suggested arbitration as the only alternative. That alternative the committee accepted. At this point and as evidence on the charge of bad faith of the committee may be cited the form of ballot sent out by it for a referendum vote on the question of sustaining the latest demand formulated after the scale of April 9 had been approved by the 9 out of the 11 divisions. On the ballot the committee asked the men whether or not they would sustain their demands. No reference was made to the previous action, attitude or pledge of the committee and the ballot was, in effect, a campaign circular, rather than an official ballot. In the referendum the men, by a large majority, naturally sustained that demand.

THE DECISION OF THE ARBITRATORS.

In dealing with the great mass of evidence filling 526 large pages of typewriting and a huge bulk of exhibits the arbitrators divided it into three classes: economic, fiscal and moral, the last two, respectively, relating to the fiscal condition of the company

and its ability to pay, and the question of bad faith and broken agreement and pledges.

As to the cost of living there were found in both the testimony and the exhibits most inharmonious disparities, and many obvious flaws. As ex-parte, all of that line of evidence opened itself to suspicion. The magazine articles were semi-sensational; government reports covered long periods of time, and were not localized to Connecticut; newspaper advertisements of prices were abnormal, their quotations of prices too infrequently changed and not up to date. Through nearly all the prices cited ran the two errors of being fixed at points of time instead of covering periods of time and also not allowing—in the case of foods—for amounts entering into consumption. One table, however, prepared by one of the arbitrators and introduced by consent, was an exception to the rule. It was taken directly from the household account of a family of seven, unvarying in size, and covered six corresponding months of 1907 and 1910, and 63 articles of food, including ice. It showed a gain for the second and later period of a little more than 8 per cent. Contrasted with figures from the same household for 1904 the table indicated a gain of about 17 per cent. The strong suggestion of the return was that the major part of the rise in cost of living came in the three years preceding 1907 and, coming slowly, was less felt and recognized; while the 8 per cent. rise since 1907, coming suddenly, has been felt more acutely and challenged attention.

In making their findings the three arbitrators, appealing more to their own experience than to the erratic references in the evidence, agreed that there was a rise in the cost of living which, considered by itself, entitled the men to more pay than was given them under the wage scale in force. But they disagreed on the "market price" principle and economic law of supply and demand connoted by the oversupply of men on the waiting list and the lower wage scales of other Eastern trolley lines. The arbitrator for the company urged the general principle as reinforced by other facts, notably the increased wages already granted by the company and the tendency of the dread of the potent weapon of a street railway strike to raise wages of the trolley men above the normal market level. His two colleagues urged that the oversupply of men on the waiting list implied their inefficiency, despite his counter claims that efficiency was reasonably guaranteed by the company's dread of damage suits and injury to rolling stock. The three arbitrators substantially agreed that wages in other vocations were practically no criterion for this case, and also agreed in ignoring the evidence on both sides—the "fiscal" question—relating to the financial condition of the Connecticut Company.

But the great contest came in the consultation over the question of the agreement with the company violated by the men; and in his final finding Judge Case took the view that it was excluded from consideration by the articles of arbitration, which, in his opinion, referred to wages alone. The arbitrator for the company, per contra, held that permission given by those articles to each side to present any evidence it desired were the dominating words that widened the scope of the investigation so as to include the whole moral question of the violated compact; and, in his minority opinion filed, expressed his belief that by refusing to face this moral issue the arbitration had worse than failed. It ought, perhaps, to be added that at the hearing counsel for the men had refused to put in evidence on the violated agreement, while a large amount of the company's testimony bore explicitly on the point. In the end the arbitrator for the men concurred with Judge Case in giving them a small increase—about 2 per cent.—of pay—Judge Case writing the opinion.

In looking back over the long arbitration protracted through some two months—though the actual hearings lasted through only four days—some brief reflections of a general nature on arbitrations of the kind may be indulged. In the first place the articles of arbitration should be scrutinized by each side with the utmost care. A single sentence in them, even a word, may be the turning point of the whole case—especially should the

third arbitrator be a strict constructionist or the reverse. The articles should be free from collateral issues and reduced to the direct question involved. Secondly, the "cost of living" factor is almost sure to figure in wage arbitrations, and may also be reduced to low terms. One side tries to push the cost of living up, the other to pull it down. The process is well nigh endless, the returns almost sure to be unprecise, the statistics a great jungle of figures from which the weary arbitrators must at last turn to the not much more definite tests of personal experience. Thirdly, the management of the arbitration on each side should be left to trained attorneys to marshal and align the evidence and prevent diffusion; and, for the same reason, the third arbitrator, who practically sits as umpire, should have a clear head in cutting short irrelevancies. Finally, the side that adopts the policy of contracting its volume of exhibits to essentials will, in that too often dreary branch of an arbitration, have vantage over its opponent who, with his multitude of documents, correspondingly dilutes his cause.

LIFE OF FIREBOXES AND TUBES.

In his report on improvements in locomotive boilers before the International Railway Congress, H. H. Vaughan, assistant to the vice-president of the Canadian Pacific, had the following to say concerning the life of fireboxes and tubes on American locomotives:

Life of Fireboxes.—The life obtained from steel fireboxes varies considerably with the quality of the water used and with the type of firebox. No reliable information is obtainable with reference to the influence of the quality of steel on the life of the firebox with the exception that one administration reports steel having from 0.10 to 0.18 per cent. carbon has been found to give better results than steel having from 0.18 to 0.25 per cent., while several report that a special brand of acid steel having exceptionally low phosphorus and sulphur has been found preferable. Some administrations with locomotives of an older type in which the firebox is deep and placed between the frames and where water is of good quality report the life of fireboxes as high as 20 years and over, but the general experience with modern engines using 180 to 200 lbs. boiler pressure is that the life varies from two to four years in bad water districts, and up to ten years and over where water is good. The exact life of fireboxes is difficult to determine from the fact that the various sheets composing it do not last the same length of time. Where the nature of the scale is such that the sheets become easily overheated and the service is severe, side sheets in engines of the wide firebox type are occasionally replaced in from one to one and a half years, while crown sheets which do not deteriorate so quickly give considerably longer service. Thus one administration reports that side sheets are being renewed in from one to three years while crown and flue sheets average five years life.

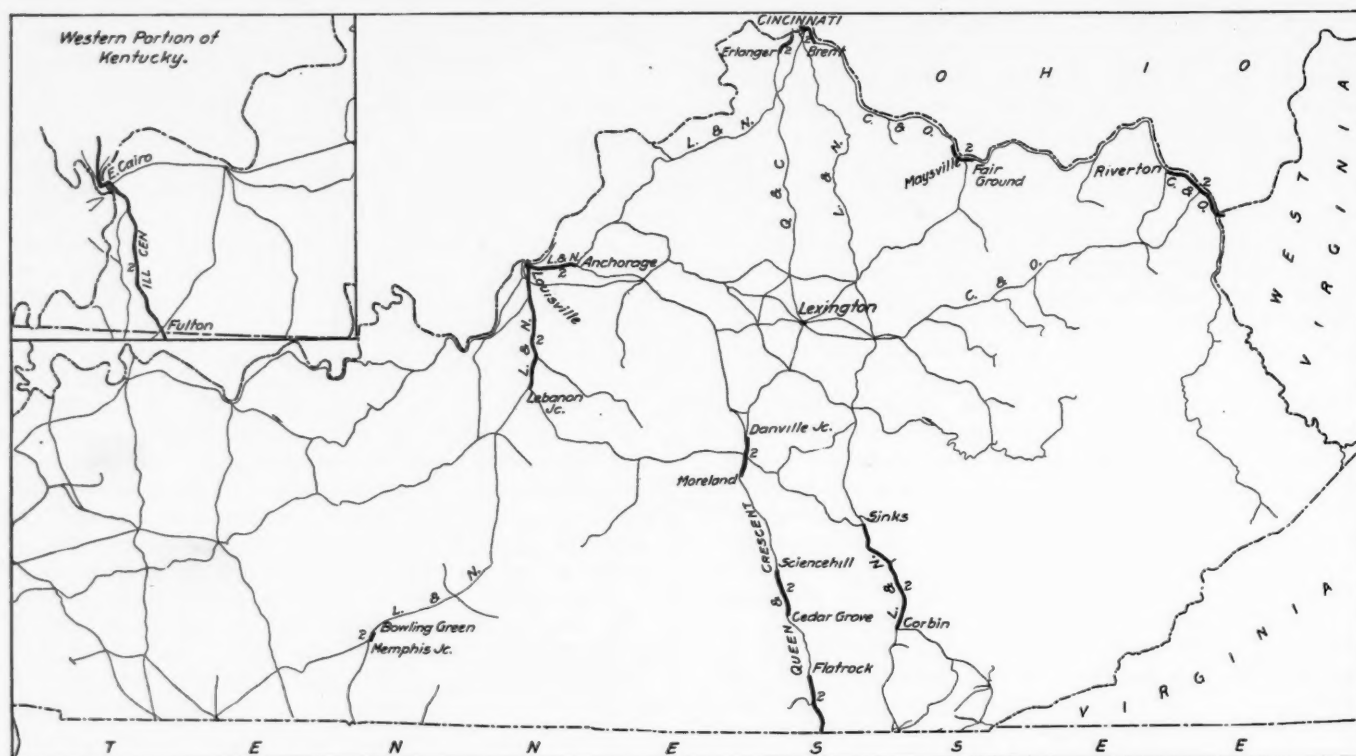
It is difficult to present any correct figures on account of the great variation in the conditions. The figures given above are fairly representative of the replies received from a number of administrations. The Buenos Ayres & Rosario Railway, which uses both copper and steel fireboxes, states that with copper the life of the firebox has been from 10 to 12 years and with steel about four years. This would indicate a considerably longer life for copper fireboxes than for those made of steel, but the copper firebox has been found impracticable in American service on account of the rapid erosion caused by the sparks, due to the high rates of combustion at which engines are frequently worked. It should be borne in mind in connection with the life of fireboxes, that in American practice the miles run per locomotive per annum are exceedingly high, 30,000 to 35,000 miles frequently being obtained, while individual engines in passenger service have been run from 6,000 to 7,500 miles per month. Measuring the life of fireboxes therefore in terms of years does not represent entirely the service obtained, unless the miles run per month or per annum are

taken into account, and when this is done the service obtained from steel fireboxes becomes satisfactory. The reason for the rapid deterioration of the side sheets in wide firebox engines in service where the water is of a bad quality is not entirely clear. It has, however, recently been ascribed to the inclination of the firebox sheets towards each other at the top so that the bubbles of steam formed next the sheet are not wiped off by the ascending streams of steam bubbles from other portions of the sheet, as is the case with fireboxes of a narrow type placed between or on top of the frames. Some boilers have recently been constructed in which the width of the firebox is reduced in order to allow of the inclination of the firebox sheet outwards towards the top so as to obtain this action. Whether from this cause or not there is little doubt that overheating of side sheets occurs and that the reason is on account of insufficient circulation. Some recent experiments

occurs and the water is of an average quality, the life of the body of the tube will average from 8 to 12 years before it is scrapped on account of insufficient strength. The Buenos Ayres & Rosario Railway, which uses both brass and iron tubes, reports brass tubes as lasting from 10 to 12 years, while iron tubes are scrapped after four years on account of pitting. This evidently is caused by the quality of the water, and there would not appear to be a very great difference between the life of the brass and iron tubes where the water is not of such a quality that the body of the tube is attacked.

DOUBLE-TRACK RAILWAYS IN KENTUCKY.

The railway map of Kentucky, given herewith, is printed for the purpose of showing all sections of railway in the state on



Double-Track Railways in Kentucky.

have indicated that an improvement may be obtained by arranging for a greater depth of water in the sides of the firebox below the surface of the grates, and this would also confirm the theory that defective circulation is a reason for the short life frequently obtained from side sheets on boilers of the wide firebox type.

Life of Tubes.—The life of tubes varies largely with the quality of the water. It is common practice to safe-end or weld additional portions on to the body of the tube from four to ten times where the water is such that no pitting of the body of the tube occurs. The length of time required before the tube is removed on account of the end being so damaged by rolling and beading that it cannot be maintained in a sufficiently tight condition for proper service, varies, according to the water conditions, and type of engine, from five to six months up to three years and over. On one railway tubes are removed for safe-ending after 40 to 60 thousand miles in freight service and 75,000 to 110,000 miles in passenger service. On another they are removed in bad water districts after five to six months, and in relatively good water districts after 10 to 12 months. The shortest life of the body of the tube reported is from two to three years, while some administrations report tubes lasting as long as 15 years and over. Where no pitting

which there are two or more main tracks. The termini of the sections, as shown in the map, are as follows:

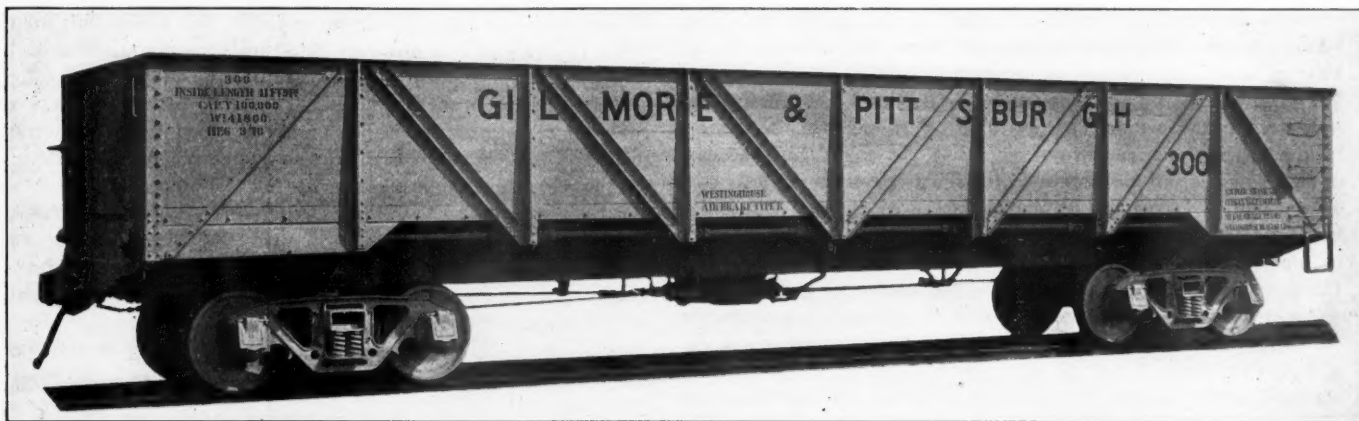
KENTUCKY.		No. tracks.	Approx. miles.
<i>Queen & Crescent.</i>			
Ludlow to Erlanger	2	7	
Danville Junction to Moreland	2	9	
Science Hill to Cedar Grove	2	12	
Flat Rock to Helenwood, Tenn.	2	30	
<i>Chesapeake & Ohio.</i>			
Barboursville, W. Va., to Riverton	2	37	
Fair Ground to Lawrence Creek	2	8	
Brent to Cincinnati, Ohio	2	10	
Sinks to Corbin	2	34	
At Lexington	2	1	
<i>Illinois Central.</i>			
Wickliffe (near Cairo) to Fulton	2	42	
At Louisville	2	1	
<i>Louisville & Nashville.</i>			
Louisville to Anchorage	2	16	
East Louisville to South Louisville	2	..	
Louisville to Lebanon Junction	2	29	
Bowling Green to Memphis Junction	2	5	
Covington to Milldale Tunnel	2	1	

COMPOSITE GONDOLA CAR FOR THE GILMORE & PITTSBURGH.

The Gilmore & Pittsburgh recently had built by the Western Steel Car & Foundry Co., Chicago, 100 fifty-ton composite gondola cars of the design shown. These cars are of the general service type, intended for use as an ordinary solid floor gondola or a side dump car, making it suitable for any lading usually carried in gondola or hopper cars.

intended to facilitate repairs in a section of the country where wood is plentiful and steel has to be transported considerable distances. The design, however, permits of all-steel construction, and a number of such cars are in service on different rail-ways.

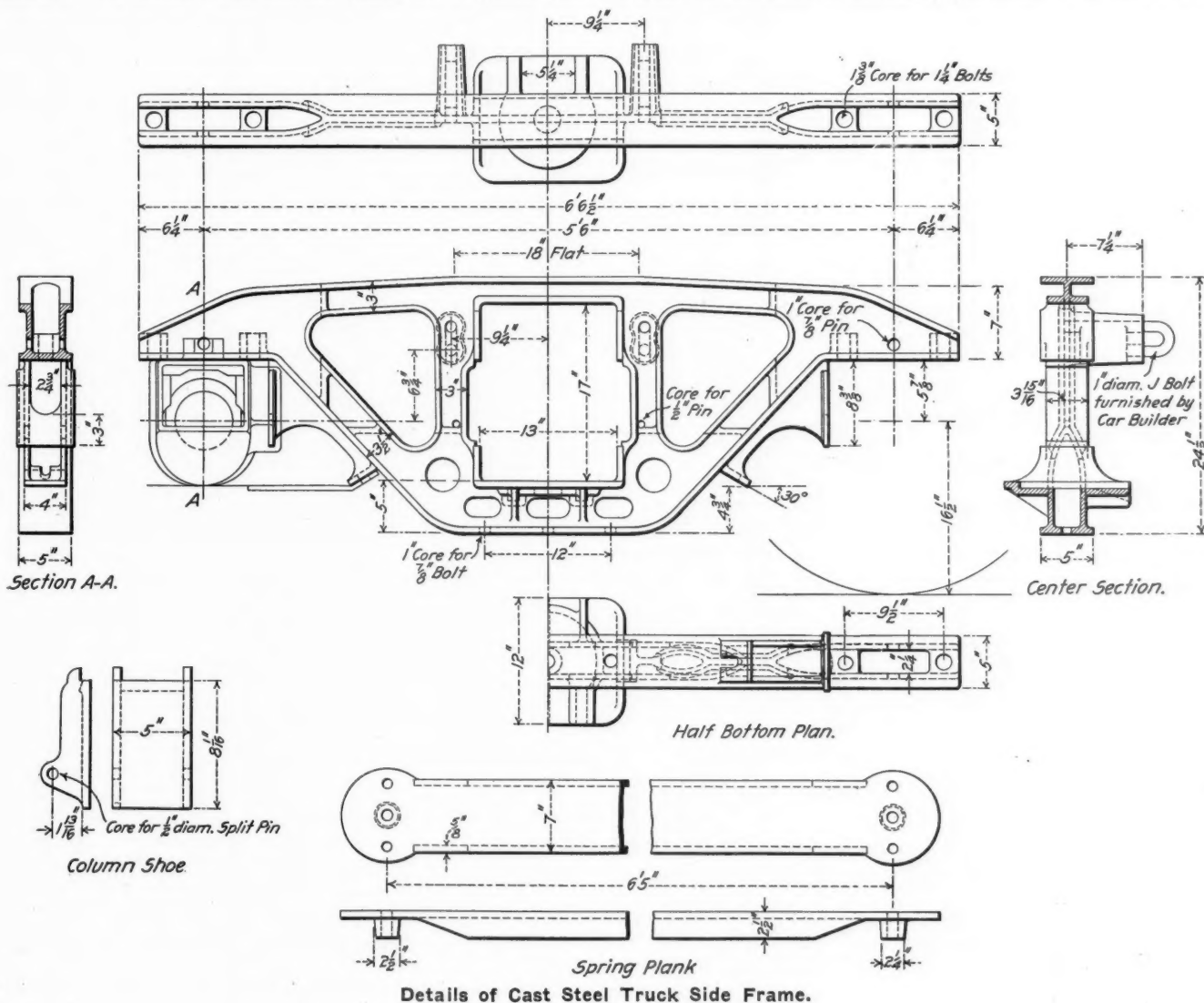
The 16 drop doors, extending the full length of the car, are arranged to discharge the load at the sides. The doors on either side may be operated independently, or those of both sides together. It requires from three to four minutes to discharge the



Composite Gondola Car; Gilmore & Pittsburgh.

The photograph shows the general design, which utilizes a single center sill with trussed side framing, made up of standard sections for the tension and special sections for the compression members. The flooring, side and end planks are of yellow pine,

load and return the doors to their closed position. They are operated by chains and a creeping shaft device. This arrangement has proved very efficient for this purpose, as accidental opening of the doors is effectually prevented. The ends are ar-

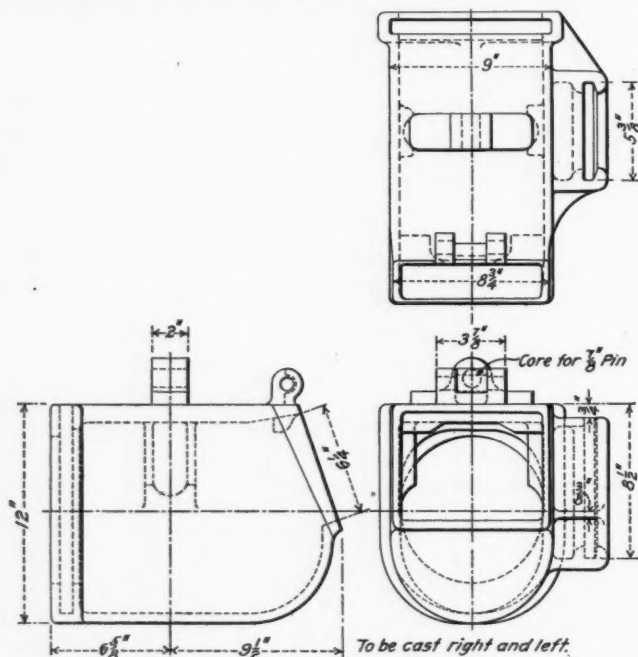


ranged for dropping to facilitate the loading of long material.

Probably the most interesting detail of this car is in the all-cast steel truck, made by the Pittsburgh Equipment Co., Pittsburgh, Pa. It is said to be the first such application to American cars. The drawing shows the design of the I-beam section truck side frames and the journal boxes. The assembled truck has but four bolts, one on each journal box; these are $\frac{7}{8}$ -in. in diameter and pass through the two vertical members of the frame and the lug on the top of the box. Cotter pins may be used instead of bolts as they are not subjected to any stress, the provision being made merely to prevent the side frame from lifting off the box in case of derailment or collision.

The journal box conforms to M. C. B. standards, except that it has a top and a side lug cast integral for receiving the interlocking truck side frame, and also that the boxes must be cast in rights and lefts. Reference to the illustrations shows lugs cast on the under side of the oblique members of the side frame for bolting a temporary strap around the box in case it is necessary to replace a broken one by a standard M. C. B. box. The side frame is cored for column bolts for the same emergency.

The truck side frames have filler block or cheek plates on the columns, an invention of W. P. Richardson, mechanical engineer, Pittsburgh & Lake Erie. These cheek plates are removable and serve the double purpose of allowing the bolsters to be



Special Journal Box.

placed or removed without jacking up the car or taking out the spring plank, and of taking a considerable portion of the service wear of the bolsters off of the truck side frame column faces. The spring planks have projections at each end so that they drop into sockets in the spring seat portion of the truck side frame.

Following are the general dimensions of the cars:

Height from rail to top of body.....	8 ft. 11 in.
Height from rail to top of floor.....	4 " 7 "
Depth of car body.....	4 " 4 "
Length inside of body.....	41 " 9 "
Length over end sills.....	43 " 2 1/2 "
Width inside of body.....	9 " 2 1/2 "
Width over side stakes.....	10 " 2 "
Length of drop door openings, 4 doors.....	4 " 10 "
12 doors.....	4 " 9 "
Width of drop door openings.....	4 " 0 1/2 "
Distance from center to center of trucks.....	31 ft.
Truck wheel base.....	5 ft. 6 in.
Capacity.....	50 tons
Weight.....	41,803 lbs.
Ratio of paying freight to total wgt. loaded car.....	72.5 per cent.

Other special equipment used on these cars is as follows:

Brakes.....	Westinghouse
Brake beams.....	Damascus, Waycott
Couplers.....	Climax
Coupler operating device.....	Carmer
Center plates.....	Cast steel
Draft rigging.....	Westinghouse friction
Dust guard.....	Basswood
Journal wedges.....	Drop forged steel
Nut locks.....	Bartley

AMERICAN ASSOCIATION OF RAILWAY SUPERINTENDENTS.

The second meeting, for the current year, of the American Association of Railway Superintendents was held at the Planters Hotel in St. Louis, on September 9. Fifty-three delegates were present. Two local associations were admitted to membership, those of Oklahoma and Indianapolis, Ind.

The Committee on Interchange Car Inspection reported the action taken by the various divisions of the association on the rules promulgated at previous conventions and considerable discussion ensued regarding the cost of inspection. T. B. Fogg, general manager of the Toledo Terminal, believed it was not right to require as many inspections as are now made in transferring cars. He said that frequently more damage is done in the yards after the inspection by the delivering line than was done on the road. If a transferring line such as his made no inspection then the inspection made by the receiving road placed all responsibility for damage between the two inspections upon the transferring company. He believed inspection terminating the road trip should be abolished and that an examination should be made at the point of delivery to the transferring company. Few of the delegates believed this matter was one that the association should take up, as it was purely local. The inspection at the termination of the road trip is primarily an examination required by law to see that all safety appliances work properly and the road trip properly ends on the arrival of the car in the yards. The discussion and reading of reports from local associations showed that all were working practically under Rule 2 of the Master Car Builders' Association as to inspections. J. E. Taussig, terminal superintendent of the Wabash, St. Louis, Mo., suggested that all car interchange rules should be practically uniform, and this was the sense of the convention. The uniform list of non-transferable commodities recommended by the Association of Railway Claim Agents was adopted.

The Transportation Committee favored dropping the matter of recommending grain door rules because conditions in the grain business are such that uniform rules for the collection of grain doors are not practicable. President Somerville requested the committee to include the subject in its list of subjects for the coming year as he did not agree with the recommendation. He believed the subject was of growing importance and that if properly studied the situation now existing could be materially improved. The committee agreed to investigate further and report at the next meeting. The association acted favorably on the committee's recommendation that the following resolution be referred to the American Railway Association:

"RESOLVED, That all broken, defective and imperfect seals be reported by the agent of the receiving road to the superintendent or agent of the delivering road, by letter, within 48 hours after seals are examined by a representative of the receiving road; reports to include all cases of absence of seal, seal improperly applied, broken seal, indistinct impression on seal, blank seal, seal on insecure door fastening, and where the seal and door fastening together do not fully protect the contents of car."

On the subject of uniform lettering of cars recommendation was made that the marks "A" and "B" be used on sides and "D" and "C" on ends. In addition, the recommendation was made that all cars belonging to a certain railway system have only the name of the system stenciled on them, it being the opinion of the committee that the ownership of a series of cars belonging to a subsidiary company, or division, can be easily recorded in the offices of the auditor and superintendent of transportation, thereby materially simplifying the operating department's work. The committee also believed that as all cars are at present equipped with air-brakes it is unnecessary to stencil on them the words "Air-Brakes." While this is a small matter on one car, when all the cars bearing the words "Air-Brakes" are taken into consideration, it means considerable wasted labor and expense. It was decided to refer this subject to the American Railway Association for its consideration.

The committee recommended that the matter of "set-backs" be submitted to the American Railway Association, favoring:

the adoption, as recommended practice, of a blank to be used for the reporting of set-backs, similar to the following:

NORTH AND SOUTH RAILROAD.

St. Louis,1910.

PERSONAL.

Mr. Superintendent.

..... R. R.

Dear Sir:

Cars designated below were sent back to your road for causes shown, during the 24 hours ending last midnight:

Time		Car Number	Initial	Cause
a. m.	p. m.			

You are kindly asked to investigate, for the purpose of keeping such unnecessary switching down to a minimum.

Yours truly,

..... Superintendent.

The use of this blank by one superintendent for three months had reduced the number of set-backs 35 per cent. The report of the committee on this matter was adopted unanimously.

The subject of hoof weights used in determining charges for the carrying of live-stock caused a long discussion. The committee pointed out that track scale weights are not always correct, which was objected to by some delegates who believed it was not good policy to cast reflections on track scale weights, and that this was a thing which should not be taken up by superintendents because it is almost wholly a local traffic matter. The general opinion seemed to be that the matter was an operating matter, as the superintendents in charge of operation must weigh cars loaded with live-stock on arrival, and after they are unloaded. This means considerable delay and the tying up of cars which should be promptly released. The committee argued that if track scales did not give the correct weight, the railway might be guilty of a violation of the Interstate Commerce Law. Owing to the present practice of charging by scale weights there are arbitrary allowances of "shrinkage" and "fill" provided for in tariffs. If shippers of live-stock were compelled to install alley scales and give the actual hoof weights to the railways, as a basis for freight charges, "shrinkage" and "fill" can be eliminated from tariffs. It was decided to refer the question and a verbatim report of the discussion of it to the American Railway Association.

The Executive Committee docketed the following subjects for discussion: "Charge for Disinfecting Cars Loaded with Cattle from Quarantine Districts," and "Broader Scope of Activities of the Association."

The government provides regulations for the shipment of cattle from infected districts and for the cleaning and disinfecting of cars used for that purpose. It was believed that no railway can refuse to receive such cattle for shipment. Therefore, the cost of cleaning and disinfecting the cars cannot be avoided. The opinion prevailed that the shipper should pay for the cleaning and disinfecting of the cars and that the traffic department should provide for this in its published tariffs, for it was pointed out that government officers are daily becoming more strict in their requirements. It was decided to refer the matter to the American Railway Association and to the American Association of Freight Traffic Officers.

The matter of broadening the scope of the association was discussed in a paper presented by E. H. DeGroot, Jr., superintendent C. & E. I., St. Louis, Mo., and one by T. B. Fogg, general manager, Toledo Terminal. Both believed that the American Association of Railway Superintendents, as at present organized, cannot present the views of the local superintendents in a proper manner to the American Railway Association.

Attention was called to the fact that the American Railway Association had passed a resolution regarding the advisability and necessity of calling on the many voluntary railway officers' organizations in the United States for assistance and information. The discussion indicated a general desire to have the American Association of Railway Superintendents composed of individual superintendents, rather than, as at present, of divisional or local sections. J. E. Taussig, Terminal Supt. Wabash, St. Louis, Mo., presented a resolution asking the president to appoint a committee of five to redraft the entire constitution and by-laws of the association so as to make eligible to membership trainmasters, general yardmasters and train despatchers, and to follow as closely as possible the organization of the American Railway Engineering and Maintenance of Way Association. The resolution was adopted unanimously and the president stated that he would later announce the names of the committee for this purpose.

The following officers were elected:

President, J. A. Somerville, superintendent terminals, Kansas City, Mo.

First vice-president, Brent Arnold, superintendent L. & N., Cincinnati, Ohio.

Second vice-president, S. M. Russel, superintendent T. P. & W., Peoria, Ill.

Members executive committee, E. H. DeGroot, Jr., division superintendent C. & E. I., St. Louis, Mo., and E. R. Scoville, superintendent B. & O., Chillicothe, Ill.

Secretary and treasurer, O. G. Fetter, Cincinnati, Ohio.

The St. Louis division acted as the host of the members and their families, who were given a street-car ride around the city in private cars by courtesy of the St. Louis Traction Co. A lunch was given in the Planters Hotel roof garden at noon, and at 5 p.m. special street-cars took the delegates and their families to Delmar Garden, where dinner was served. This was followed by a vaudeville entertainment in the Delmar Garden Theatre.

CLARK'S TABLET EXCHANGER.

The photographic illustrations show a tablet exchanger lately adopted as standard on the New South Wales Government Railways, where tablets have been in use on fast trains requiring an automatic exchanger, for over 15 years. The principal characteristic of Clark's design is the "helical arm" on the engine

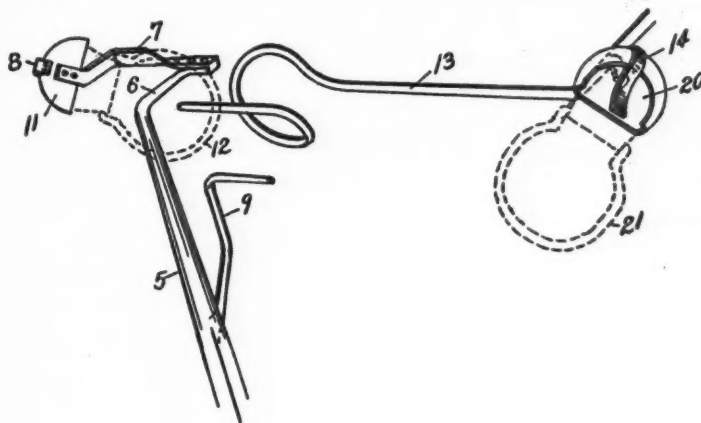


Fig. 1—Operation of Tablet Exchanger.

for picking up the tablet. The way the apparatus works may be seen from Fig. 1, and its appearance just after an exchange has been made is shown in Fig. 2. In Fig. 3 the fireman is taking off a tablet which the engine has just picked up, and the station man is putting the ground apparatus down out of the way. As the engine passes the ground exchanger, the point of the corkscrew arm 13, Fig. 1, enters the bail 12 and pulls the tablet (in pouch 11) out of the holder 8. When this is free,

the bail 12 swings round the corkscrew arm 13 and is gradually braked or stopped by the resistance of the atmosphere and comes to rest on the arm without clatter or impact. Then the arm 9 enters the ring 21 of the tablet on the engine and pulls it from the spring holder 14.

The arm on the locomotive is fastened to the left trailing splasher. The apparatus is fitted to a plate which bolts to the back of the splasher with slotted holes to permit it being adjusted bodily as the wheel tires get thin. This can also be done by a regulating bolt through the projecting arm as it passes out over the foot-plate.

When an engine passes the distant signal the fireman places the incoming tablet (which is inside a strong leather pouch) in the brass pocket on the arm, the ring being held in position by a spring clip. After passing the home signal the fireman lowers it into position by a lever and connecting rod, and as soon as the exchange is made he then heaves it up and removes the

the exchange is made he removes the tablet, and he also lowers the apparatus unless it is required for the next train.

This apparatus is in use over 339 miles of road and at 48 meeting stations, by six regular trains, daily, besides specials. The tablet apparatus is Tyer's. On the system where Mr. Clark works there are 40 locomotives fitted with tablet exchangers, eight of which have his patent. All new ones are made to his pattern and the old ones are being converted as they pass through the shops.

The only parts of the apparatus that are patented are the twisted arm on the engine and the pocket on the ground exchanger. This pocket is an essential part, as the ring must be presented downwards or otherwise it will not be taken by the engine.

The apparatus can pick up at any speed, the faster the better. Ordinarily, trains change at from 25 miles to 55 miles an hour; and the ring is not damaged or pulled oblong. Mr. Clark says

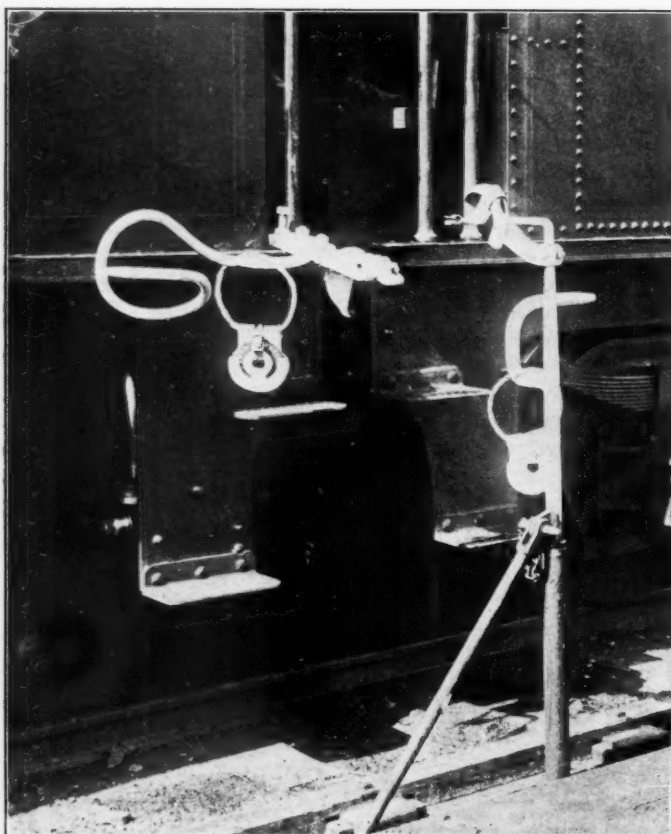


Fig. 2.



Fig. 3.

Clark's Tablet Exchanger; New South Wales Government Railways.

tablet and pouch and ascertains if he has received the correct one. It is then hung up in the cab until they approach the next station. On the New South Wales Railways the apparatus is only used on express and mail trains and only at stations where the train is not required to stop. The ground apparatus is placed on the down side of the line for down trains and on the up side of the line for up trains, and at some places at the foot of the station platform ramp. Sometimes it is placed in the center of the 6-ft. space between the main line and the loop, as shown in the photograph, Fig. 3.

When a through train is due the person in charge of a station obtains a tablet for the section in advance and raises the ground apparatus from its box underground, to which it is attached by a pin, on which it works. Having raised it he inserts the tablet pouch in the brass pocket and sets the ring in a spring clip to hold it in position (if at night he lights a lamp at the foot which is a signal to the engineer that the tablet is in position). After

that the helical arm should also be put on the ground exchanger to insure fast exchange without pulling the rings oblong. The rings are 6 in. in diameter and are made of $\frac{1}{2}$ in. steel wire rope.

Engine driver James, who has been running on the government railways 13 years, says: "I have been stationed at Albury for the past eight years, and have been working express trains with tablet exchanging apparatus in use for 13 years, running 200 miles a night and exchanging tablets 22 times. The speeds at which the exchanges are made are from 25 to 50 miles an hour. I have had this exchanger in use on the Great Southern express for the last 12 months, and during that time it has never missed a tablet. I have tried it at 60 miles an hour and it works without a hitch."

The inventor's address is William Clark, Steam Shed Inspector, Government Railways, Goulburn, New South Wales, Australia.

PROGRESS AT THE GRAND CENTRAL TERMINAL.

The excavations for the new tracks at the Grand Central Terminal, New York City, have now reached a point where they have obliterated all of the tracks in the old train shed, as shown in Fig. 3 of the accompanying illustrations, and readers who are familiar with this station and who, we assume are quite numerous, will be interested in a few views showing the progress made on the new station up to the present time. The front of the old station building, facing Forty-second street, is now nearly demolished, and that part which faces on Vanderbilt avenue (seen at the left in Fig. 3) will soon follow. All of the passenger trains are now running to or from the eastern part of the new yards, upper and lower; some of the tracks here being on their permanent locations and some in temporary loca-

will be observed that, in the Grand Central Terminal, the concourse for the express trains is one story above the track level and the concourse for suburban trains is one story above the suburban track level. The Interborough subway, shown in this illustration, is on a level with the express train loop. This is the only one of the city subways now in operation. The subway next below this will afford direct connection to the Lackawanna, the Erie and the Pennsylvania stations in Jersey City.

In Fig. 2, the building on the left is the Belmont Hotel, less than half the height of which is shown in the picture. On the right is the Grand Union Hotel, an old landmark. The carriage-way in the foreground is substantially level and one traveling on this grade southward soon reaches the existing level of Park avenue. Beneath this carriage-way are the tracks of the surface street railway which extend under Park avenue south to

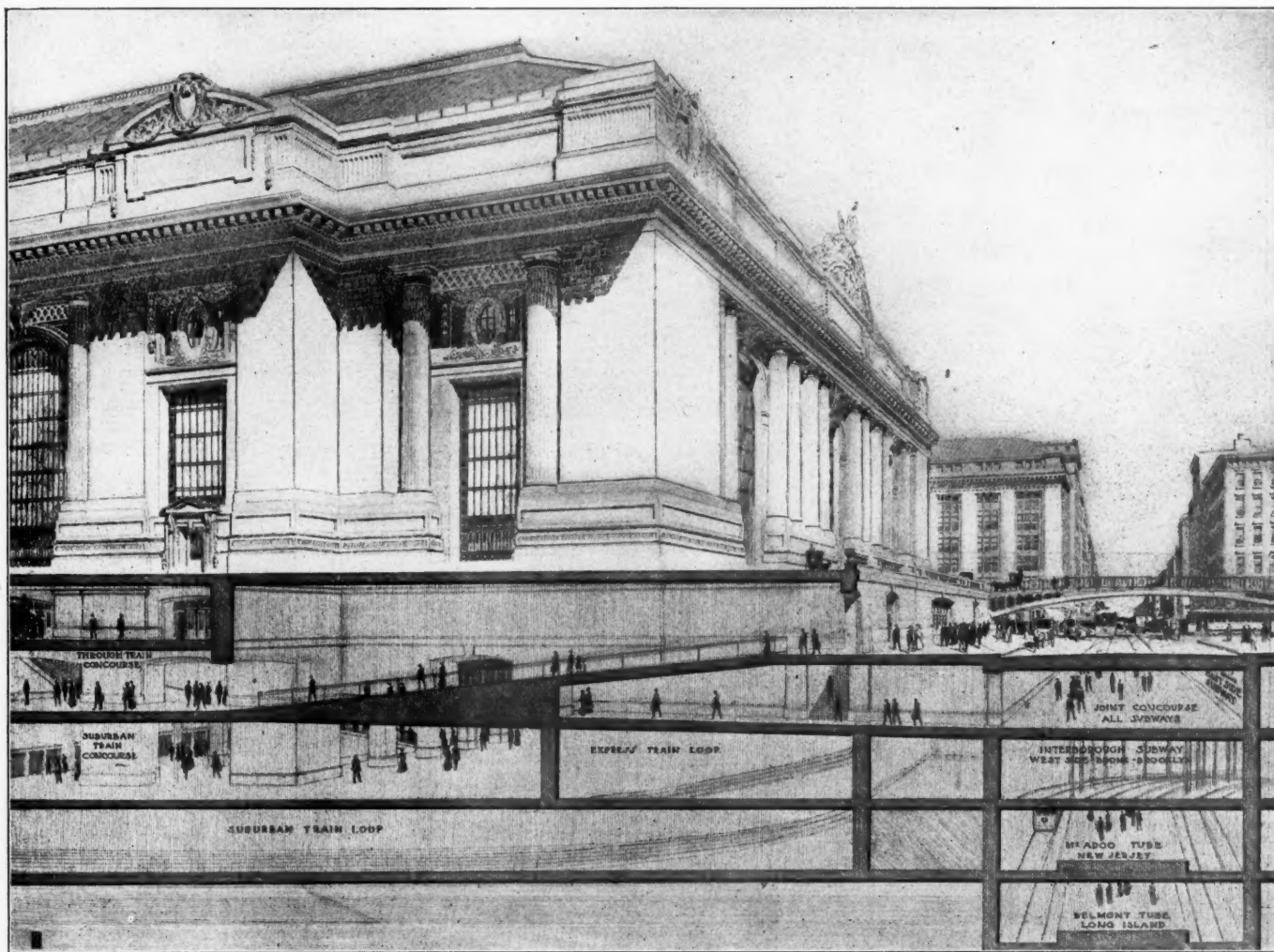


Fig. 1—Grand Central Terminal, New York City. Proposed Elevated, Surface and Underground Approaches.

tions. After the completion of the whole of the station, these temporary tracks will be re-arranged for use as storage tracks. At present, the storage yards at Mott Haven, 5 miles out, are still used for switching and cleaning most or all of the through trains. At the left of Fig. 3, in the extreme background, may be seen baggage cars standing in what is left of the old yard. This is the part of the yard that is devoted principally to the express companies. It is still connected with the outlet to the main line by a single track.

Fig. 1 shows the architect's latest sketch of the southwest aspect of the proposed new station. The principal feature of this drawing is the bridge spanning Forty-second street. The floor of this bridge shows in the central foreground of Fig. 2. The arrangement of the passages in Fig. 1 to connect with the subways in Forty-second street, is in some respects tentative. It

Thirty-fourth street. It will be observed that this drive-way extends across the front and around both sides of the terminal station, at a grade some 12 or 15 ft. above the level of the streets which surround the station.

In Fig. 3, the columns for the new structure, which appear at the right of the engraving, are about on the center line of Park avenue, which is the center line of the original right-of-way of the New York & Harlem Railroad. Those parts of the new building which are finished and which are partly shown at the right are now occupied by offices of the New York Central and of the New Haven road. The engineering department of the New York Central, as well as several clerical departments, are still quartered in other buildings. The chief engineer is still in the temporary building at Madison avenue and Forty-third street.

Fig. 4 shows these office buildings and the platform tracks on

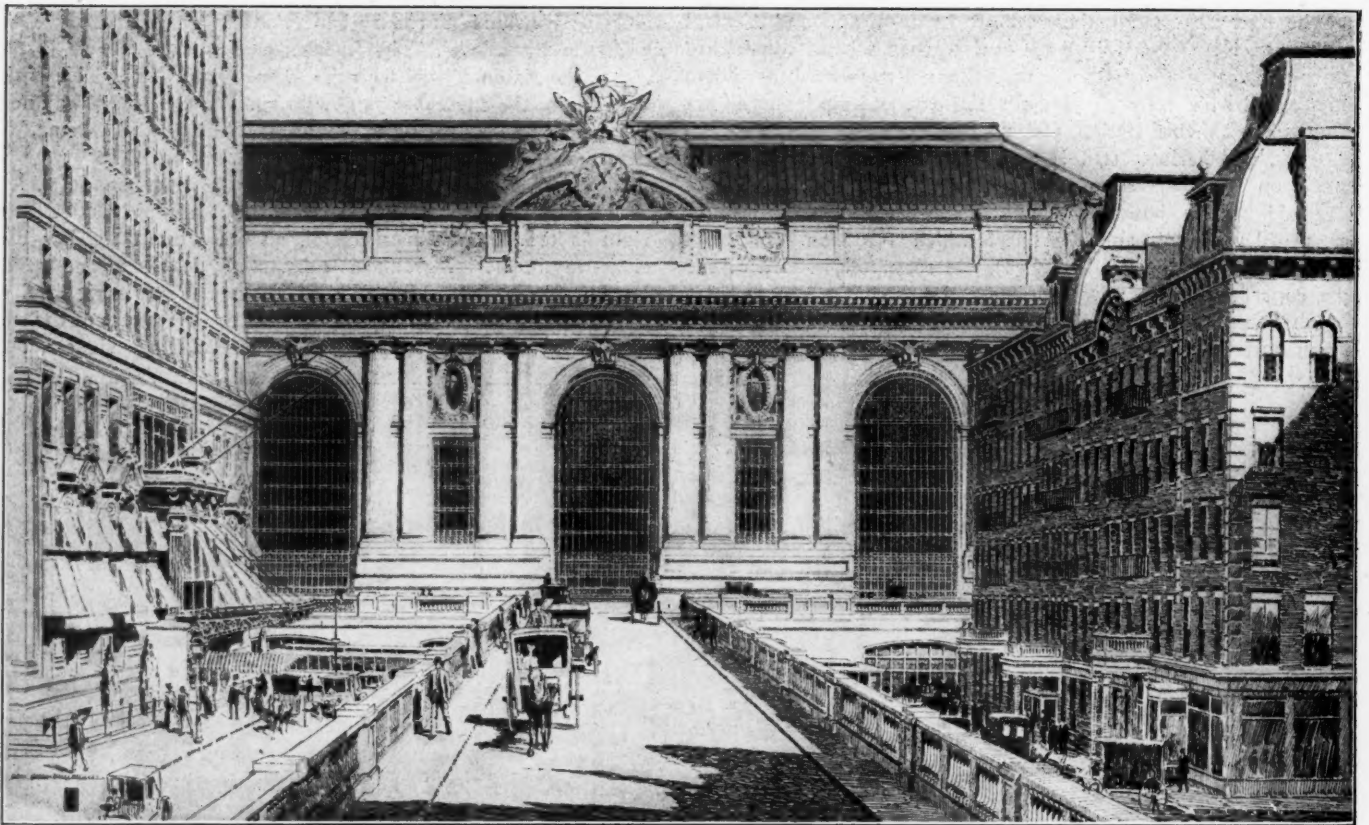


Fig. 2—Grand Central Terminal, New York City. Proposed Main (South) Approach to New Station.



Fig. 3—Excavation for New Station; Looking North from a Point on the Line of 43d Street.



Fig. 4—Grand Central Terminal, New York City. Looking South from 48th Street.



Fig. 5—Last of the Grand Central Station.

NOTE.—Portions of the old roof truss are visible at the extreme left of the building. Below these, the panel giving the date of erection as 1899 (MDCCCIC) was put up when the head house was enlarged in the year named. The seven panels which appear in the background above the window openings, are those which were put in place when the building was built in 1871. "C. Vanderbilt, President," which is on the center panel is the only one that is readable in the photograph.

the upper level. The Forty-fifth street footbridge across the yard, which appears at the right in this picture, is that which appears in the center of Fig. 3. The ground floor of the completed office building at the left is occupied by a branch of the city post office.

The wagon entrance to the new baggage room, which is now in use, is beneath the arch of the three-story bridge which connects the two office buildings. The transverse street which faces these buildings is Forty-fifth street. The bridge, partly completed, at



Fig. 6—Panoramic View of the Grand Central Terminal Yard; Looking Southwest, August 5, 1910.

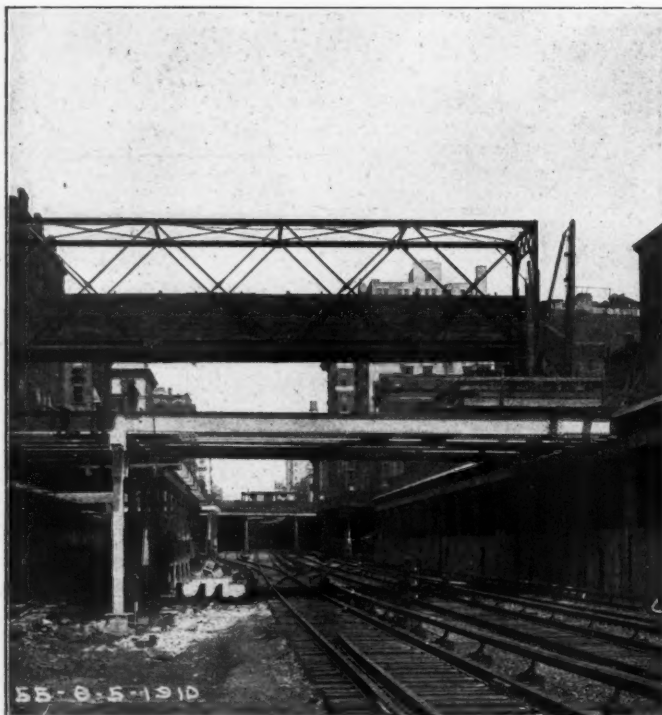


Fig. 7—Fifty-fourth Street Bridge; Looking North. Entrance to Park Avenue Tunnel.



Fig. 8—Forty-sixth Street Bridge; Looking West. Arrangement of Water and Gas Piping.

Forty-sixth street, indicated by B, is that which is shown in Fig. 8. The platform which shows white at the left in Fig. 4 is one of the permanent concrete passenger platforms. The roof or shed for this platform has not yet been put up. On the lower level tracks, seen in this view, a number of gondola cars are visible. Ten tracks at the extreme left of the lower level are now in use for passenger trains. On the upper level twenty-six tracks are in use. The tall building at the extreme right of Fig. 4 is the Belmont Hotel.

Fig. 5 shows the headhouse of the old station as it appeared on August 5. Beyond it, in the center, is the Belmont Hotel. At the left may be seen the "tunnel" through which street cars run beneath Park avenue. In the distance appears the framework of a new hotel being built at Park Avenue and Thirty-fourth street, and, a half mile farther, the tower of the Metropolitan Life Insurance building, 700 ft. high.

Fig. 6 is a view looking south, showing at the right the remaining tracks on the old level and at the left the new tracks on the upper new level. Parts of four transverse bridges for streets are shown.

Fig. 7 shows the entrance to the Park avenue tunnel looking north. At the right in this picture, the tracks are on the new level. The girders in the foreground will constitute the first transverse bridge to be completed over the new yard, and the temporary truss footbridge above it will then be taken down.

Fig. 8 shows the arrangement of water and gas pipes on the transverse bridge at Forty-sixth street.

PROTECTION OF WOOD BY CRYSTALLINE PIGMENTS.*

BY HENRY A. GARDNER.

It makes little difference what paint is tested when faulty wood is used, for the result in every case will be failure. A notable instance of such failure is recorded in the tests conducted at Fargo, N. Dak., by the Agricultural Experiment Station and the Paint Manufacturers' Association, where most of the wood used on the western side of the test fences (northern hard pitch pine) was extremely sappy and of a hard grain. After a few months' wear, the resinous sap, through the action of the sun, pushed itself through the paint and completely obliterated the latter in many spots. Again, at Atlantic City and at Pittsburgh, in the paint tests made under the inspection of the American Society for Testing Materials and the direction of the Carnegie Technical Schools, it developed that cypress and yellow pine gave unsatisfactory results in many cases. The inspectors, therefore, were forced to draw their conclusions from these tests almost universally from the white pine panels. Paint tests, therefore, if their object is to determine the value of pigments, should be made upon high grade wood, such as white pine or poplar, carefully inspected and seasoned.

Seasoning and Drying.—The importance of the proper seasoning and drying of wood cannot be overestimated, as the effect of an excess of moisture in lumber is bad from every standpoint. Every one is familiar with the appearance of a building painted immediately upon erection in the early spring, when the excess moisture in the wood, or the moisture that comes from the plaster, works itself to the surface. The badly stained appearance of the paint, which first indicates that moisture is working through, is followed by scaling and blistering, and the effect to beautify and protect has been defeated.

The strength of wood is also vitally affected by the moisture content. It is fairly well known that the strength begins to be greatest when the excess moisture in the cells or honeycomb part of the wood is removed, and when that point is reached where the fibers or cell walls are satisfied. Kiln drying may remove even more of this moisture, but if the moisture does not extend beyond the fiber saturation point, a fair degree of safety and strength is to be depended upon.

Action of Crystalline Pigments.—The effect of certain crys-

talline pigments in aiding the opaque white pigments in their battle to properly protect wood has been demonstrated in practice, and by test, and to-day the paint manufacturer is using these crystalline pigments in small percentage for this purpose. The filling of wood, such as floors for instance, has almost always been done by the use of pigments such as quartz silica, or very fine barium sulphate. The action of these pigments in penetrating the pores of the wood and becoming attached by their rough surfaces to the tentacles of the wood is extremely important. Pigments such as zinc oxide or white lead are made up of particles more spherical and with smoother surfaces, and will not secure the same hold upon the woody fiber, obtainable through the use of the rougher or more crystalline pigments. The painter often uses materials such as yellow ochre for the priming coat for wood, understanding that the ochre has a high content of crystalline pigments, such as silica or silicates. It has been found, however, that a much better practice is to have the priming coat of a paint made up with a small percentage of the pure crystalline pigments.

Treatment of Refractory Woods.—Yellow pine, cypress and other hard woods used in the construction of frame buildings, generally contain a large quantity of pitch and sap which tend to harden the grain and make penetration of the paint almost impossible. To meet such conditions, the painter generally reduces the paste or liquid paint with turpentine or other volatile solvents that will act as accelerators in carrying the paint into the fiber of the wood, and even assist in amalgamating the paint with the resins contained in the wood. The use of new solvents, such as benzol, xylol and toluol, to replace turpentine, is being experimented with, and so far very good results have been obtained. The penetrative values of the above-mentioned coal-tar distillates are high, and their price, as compared with the price of turpentine, will probably make them commercially acceptable.

The Photomicroscope as an Adjunct in Field Inspections.—The paint chemist is often called upon to report upon the value of a paint that has suffered exposure. The conditions generally looked for as being indicative of the value of a paint are hiding power, gloss, color maintenance, degree of chalking, general condition and checking. Most of these conditions are easily determined, except the latter, which cannot always be seen by the naked eye. A great many paints soon after exposure become very hard and brittle, and fine checking starts in. In order to determine the amount of checking present, and permanently record the condition, the writer has developed an apparatus which has given most satisfactory results. Its value in the field, to the paint inspector, cannot be overestimated. The apparatus is made in the following manner:

The arm and body of a microscope containing a draw tube fitted with objective and eyepiece is mounted in a horizontal position on a solid iron base, the bottom of which is punched and threaded to the standard size to receive the screw from the top of a heavy tripod. This latter piece of apparatus is placed close to the painted surface, and, by raising or lowering the tripod, the microscope can be placed in front of any spot it is desired to inspect. By regulating the coarse adjustment, the microscope is focused on the painted surface in such a way that any checking, cracking, paint coat abrasions, or other disturbing influences, even of the slightest degree, are promptly brought to the eye of the observer. The tube-camera apparatus is then placed directly over the eyepiece of the microscope and exposure is made by lifting the shutter-cap for 20 or 30 seconds, according to light conditions, giving an excellent detail photograph.

The tube camera is made of a metal tube $1\frac{1}{2}$ in. in diameter, into which is placed a lens and shutter fixed to the ordinary bulb apparatus for making an exposure. On the rear end of this tube is placed a disk of metal into which is fitted a block of wood having a central annular opening the size of the tube. On the back of the block is firmly set and screwed into position a film pack, such as is used for the ordinary photographic camera.

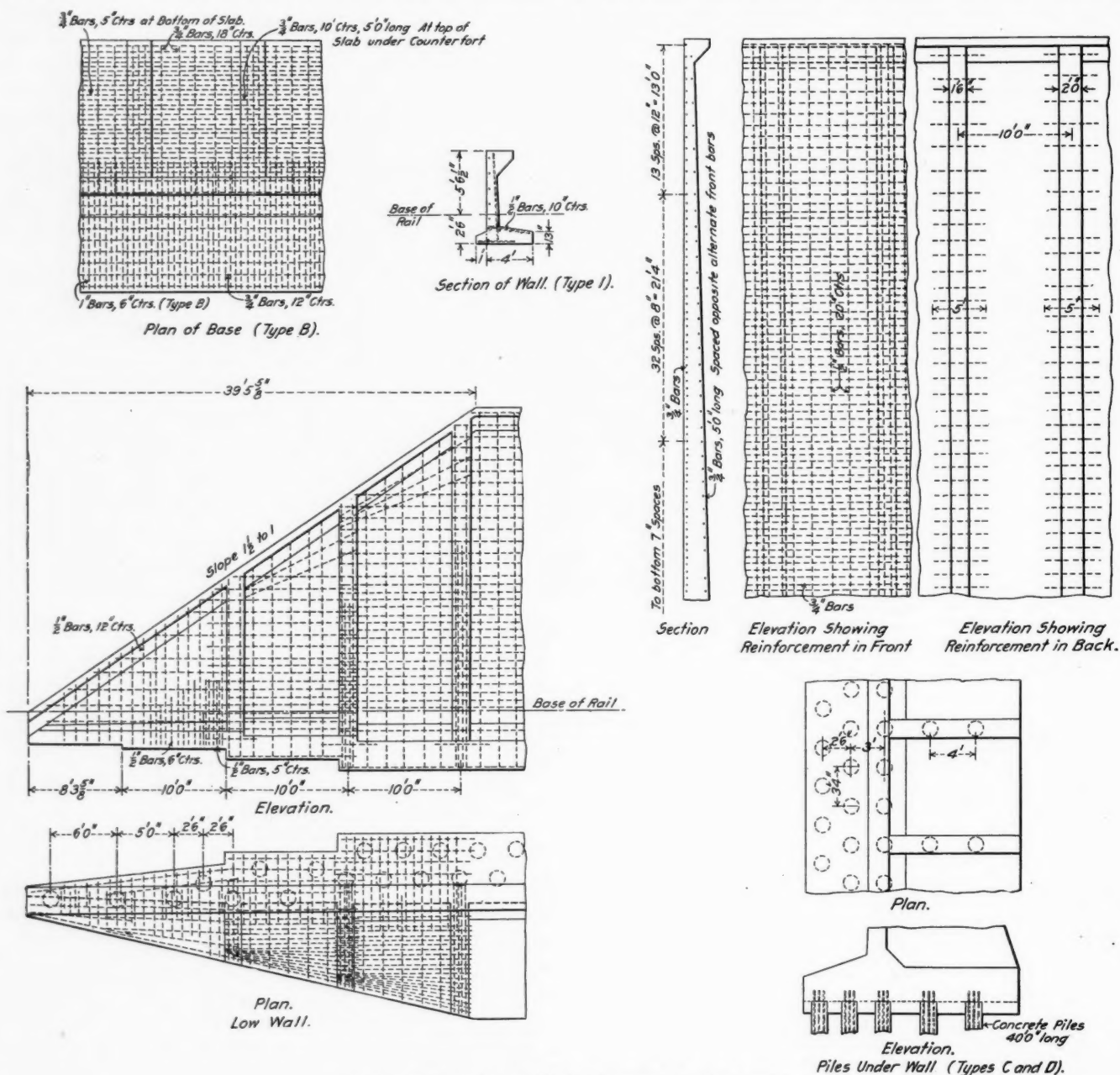
*From the Journal of the Franklin Institute, August, 1910.

FIFTH AVENUE RETAINING WALL; OREGON & WASHINGTON, SEATTLE, WASH.

In connection with the new passenger station in Seattle, Wash., the Oregon & Washington is widening Fifth avenue and yet retaining yard space in a manner which shows the value placed on such space in that city. A retaining wall is to be built varying in height from 0 to 45 ft. with a total length of 1,680 ft. It is estimated that the structure will contain 7,500 cu. yds. of concrete and 350 tons of steel. Owing to the inadvisability of excavating below the foot of a temporary bulkhead now in place, concrete

sq. in.; in shear, 50 lbs. per sq. in.; bond between concrete and steel, 75 lbs. per sq. in.; steel in tension, 17,000 lbs. per sq. in.; ratio of deformation, 12. Details of the wall are shown in the accompanying illustrations.

The widening of Fifth avenue is accomplished without the loss of yard room by means of a bridge. One end of the bridge rests on the retaining wall and the other end on reinforced concrete girders supported on reinforced concrete posts 20 ft., center to center. The bridge adds to the roadway a width of 16 ft. with a sidewalk 8 ft. 9 in. wide carried on brackets, thus gaining for Fifth avenue a total width of practically 25 ft. The bridge



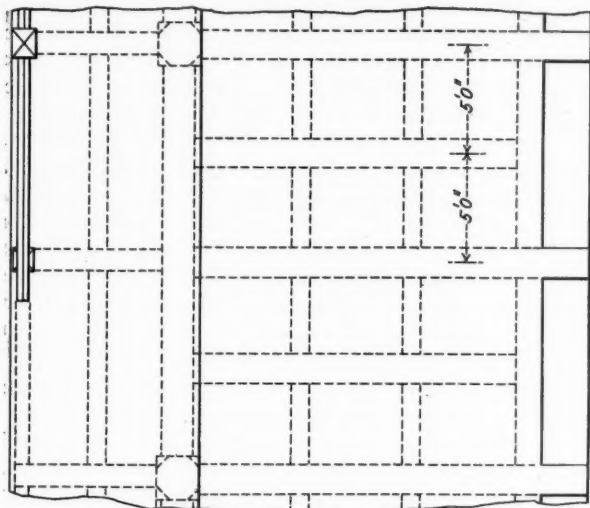
Details of Retaining Wall; Oregon & Washington.

piles will be used to support the wall. Wooden piles would have to be cut off below the permanent water level to prevent decay, and this would call for deep excavation. The use of concrete piles lessens the excavation and virtually reduces the height of the wall, thus saving concrete. Comparative estimates showed the work with concrete piles to be somewhat cheaper than with wood piles.

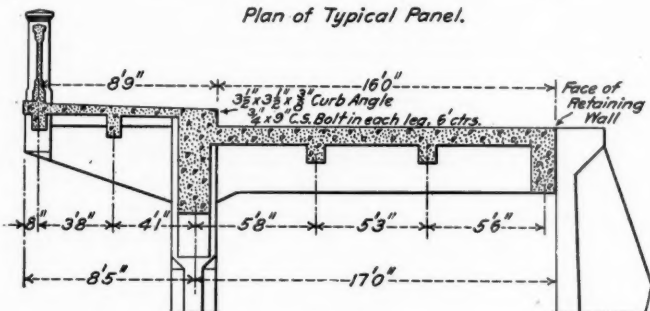
The structure will require 1,969 piles, approximately 40 ft. long and of the pedestal type, as designed and driven by McArthur Brothers; these are to be reinforced for a depth of 15 ft. below the bottom of the wall. In designing the wall the following stresses were allowed: Concrete, in compression, 500 lbs. per

is about 1,000 ft. long, and it is estimated will contain about 1,800 cu. yds. of concrete and 150 tons of steel. The concrete in the wall and bridge is to be a 1:2:4 mixture, gravel being used.

While the fiber stress method was used in designing the wall, the factor of safety method was used for the bridge. Factors of safety of 5 for live load and 4 for dead load were used, with ultimate values of 50,000 lbs. per sq. in. for steel and 2,000 lbs. per sq. in. for concrete. The bridge was designed for a 24-ton wagon in accordance with the Harriman Lines common standard specifications for highway bridges. The sidewalk was designed for a live load of 150 lbs. per sq. ft. All girders and beams in these structures were designed as simple beams with steel added

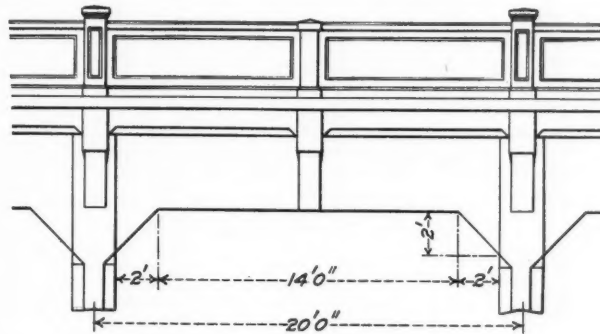


Plan of Typical Panel.

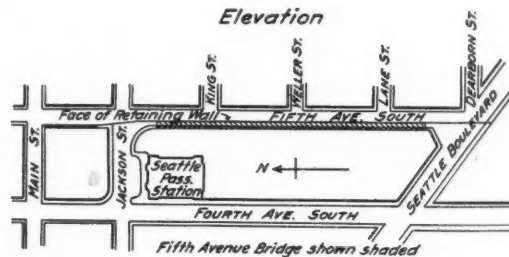


Section.

Overhanging Side Walk, Fifth Avenue Retaining Wall at Seattle.

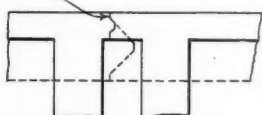


Elevation



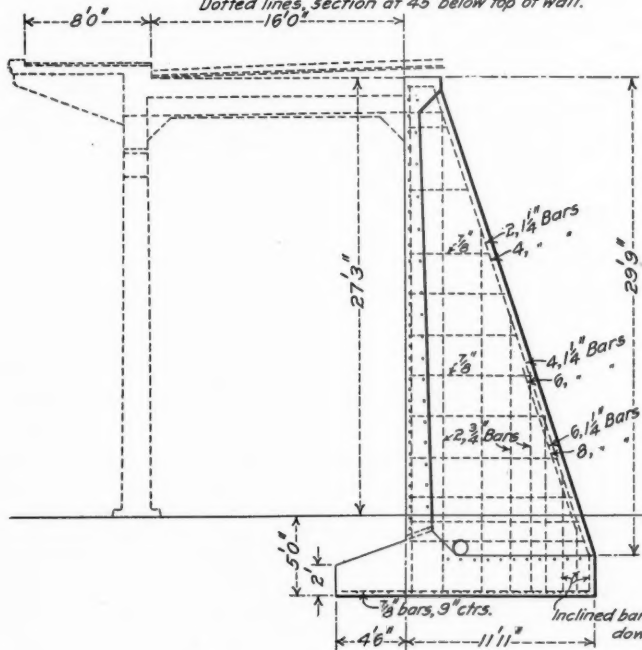
Vicinity Map.

Joint to be filled with Pitch Water-proofing Compound in event of contraction.

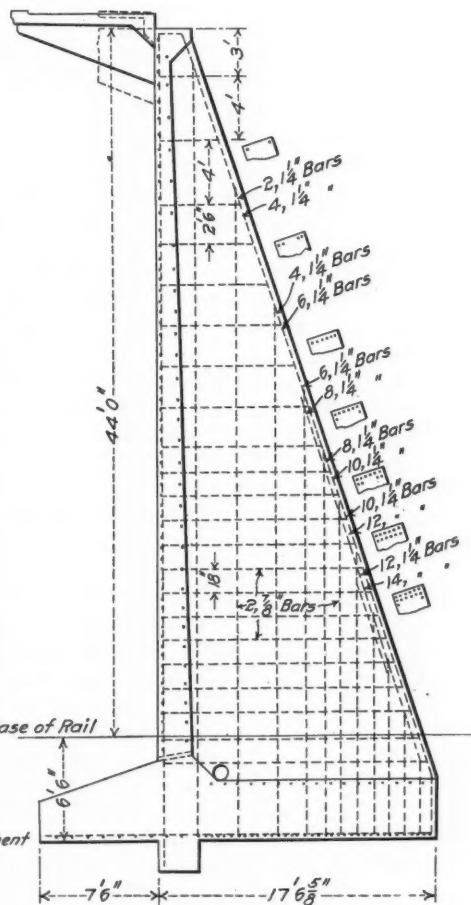


Detail of Joint.

Full lines, section at top of wall.
Dotted lines, section at 45' below top of wall.



Section of Wall. (Type D)



Section of Wall (Type A).

Sections of Retaining Wall at Seattle; Oregon & Washington.

over supports to care for negative stresses. The roadway and sidewalk slabs were designed as fully continuous. The foundation work is now in progress.

The designs were made and the execution of the work will be under the supervision of J. R. Holman, assistant general manager, Oregon & Washington. For the description and drawings from which the illustrations were prepared we are indebted to John D. Isaacs, consulting engineer of the Harriman Lines.

THE INDUSTRIAL DEVELOPMENT OF THE SOUTH.

Nowhere in the country probably is there a more fertile field for the profitable expenditure of time and money on the development of an industrial department than in the organization of the railways that spread over the southeastern portion of the United States. Nowhere, certainly, are the difficulties of making such a department a success more numerous or more vexatious than in that same territory. On a road that has land to sell it is comparatively easy to convince a board of directors that there will be a direct profit in spending money on colonizing their territory; but the results to be obtained by colonization on the lines of a road such as the Southern Railway, without lands of its own, are more indefinable and more general, so that it is harder for the industrial department to support its appeals for appropriations by a direct showing of dollars and cents profit.

Some 15 years ago the industrial department of the Southern Railway began to take definite steps to make its work a profit-yielding undertaking as much as is the work of the traffic department or the operating department. The South needed capital first of all. It needed exploitation as to its natural resources, and it needed settlers who would be capable of developing these resources. With the slow and often probably disheartening struggle of the industrial department to interest northern capital and northern and foreign settlers in the opportunities that were standing ready for them in the territory reached by the Southern Railway, we are not so much concerned, because this is largely history. With the results and with the methods of obtaining these results we are concerned, because what has been going on on the Southern Railway for years is applicable to a number of roads just now being exploited. Almost every week one hears of farmers' specials, of lectures given by experts on farm development and kindred subjects in some part of the United States. On the Southern Railway the work is not just beginning; neither is it completed, but the initial difficulties have been overcome. The snowball has been started, and, while still requiring pushing, it is showing the results of previous labor by a growth that is out of proportion to the present effort expended.

The difficulties in the way of interesting either capital or labor in the southern field are due largely to the history of that part of the country. It is not a new country; its traditions were well defined and accepted before the civil war; its prejudices are equally well defined, as are the shortcomings of some of its population. While the West was largely settled by westerners, the South, if it is to expand, must be settled to a considerable extent by northerners and by foreigners. The prejudice against both of these "aliens" used to be particularly strong, and the prejudice against new methods of agricultural manufactures was also strong. The method employed by the industrial department of the Southern Railway in interesting capital in the South was much the same as that employed by any modern selling agency. The natural advantages of locating various industries on the lines were studied, and these advantages were placed before manufacturers who were interested in that line, both in the West and in the North. The arguments in favor of locating industries in the South were presented through lectures, through pamphlets and through personal letters to business men.

The department began publishing about 15 years ago a periodical called *The Southern Field*. At present about 40,000 copies of each issue are printed and distributed free. No advertising is taken and the cost of the publication is debited against the industrial department. In fact, the industrial department apparently keeps only one side of a set of books; it is all debit. The returns on its labors and expenditures are credited to the traffic department. *The Southern Field* has as its principal object the arousing of interest in the South. In itself, without other aid, it is doubtful whether it persuades manufacturers or farmers to settle in the South, but its aim is to publish articles of enough general interest so that a man will read them whether he is looking for a place where he may better his lot or whether he is per-

fectly satisfied where he is. The direct salesmanship of the department comes in the writing of personal letters and in the talks which those connected with the department have with prospective settlers. A careful follow-up system is maintained, and there have been numerous cases where it has taken years to work a manufacturer up to that pitch of enthusiasm in which he is willing to actually invest his money in a plant along the lines of the Southern Railway. Naturally, there is a heavy responsibility on the department, for just as the success of one manufacturer, brought, say, from Connecticut to North Carolina, interests and attracts numerous other Connecticut manufacturers, so the failure of one plant located by the advice of the industrial department carries with it widespread influence.

To cite a few concrete instances of the development that is taking place in the South: In the little town of High Point there have been established 28 furniture factories, with an approximate weekly output of 80 carloads of furniture. The great majority of these factories have been established within the last few years. They are apparently prosperous, and on both sides of High Point, along the lines of the railway, the industry is being extended and new factories are being built. There are on the Southern Railway 121 knitting mills and 42 woolen mills. In 1909 there were 570 cotton mills located on the lines of the Southern Railway, with a total of 7,606,424 spindles, this in a country that used to send all of its cotton to Fall River, Mass., or Manchester, Eng., for manufacture. The manufacture of cotton seed products and cotton seed oil has in itself become an important industry in the South. The growing of peaches in South Carolina and northern Georgia especially has become tremendously profitable and the fruit has become widely known.

The South still needs capital, but it is not in such vital need as it was even a comparatively few years ago. Fully as necessary as capital is the need of settlers and of labor. One reads of the wonderful work that is being carried on by Canadian roads in inducing foreigners or people from the United States and from England to settle along their lines. The Southern Railway, while not having, we have said, any land of its own that it can sell to settlers, also has to work against the disadvantage not experienced by Canadian roads of having to persuade the present inhabitants of its territory that they will be benefited and not injured by the immigration of foreigners to their country. Of the benefits of foreign immigration to the South, no one who has studied the question at all can have doubts. It is true that there is a class of foreign immigrants who are a menace to the country rather than a benefit to it, but this class, even in New York City, is not very large and is confined quite closely to the immigrants who settle in the cities. Those who take up farming and get out in the country are, nine times out of ten, desirable citizens.

The industrial department of the Southern has its offices in London and its agents on the Continent. It is not enabled, however, to put as attractive a proposition before the prospective immigrant as is a Canadian road, because in most cases they cannot offer the immediate advantages, without the expenditure of any great amount of money, that a land grant railway can offer. For that very reason skill is needed in presenting the real advantages that the South has to offer in such a way that they will appeal to the class of immigrant that makes a desirable settler.

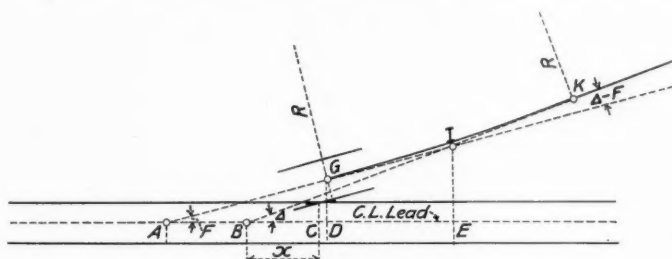
Beside this work of colonizing the South, the industrial department undertakes to educate the people who are already settled there, so that while becoming more prosperous themselves, they may be more valuable assets of the railway. There is a distinction between the planter and the farmer. The natural instinct of southerners in general leads them to be planters. They have been in the habit of planting cotton, expending a minimum amount of labor and knowledge on the operation. They have found that it is possible to raise some crops on the surface soil enriched by fertilizer with the minimum expenditure of elbow grease and brain fag, and it is difficult indeed to persuade them that such a course is short-sighted. The example

of the thrifty German farmer who moves to the Southland who is in the habit of getting the maximum yield from a given acreage of ground is invaluable as an argument in favor of more modern methods of agriculture. The industrial department of the Southern has agents out continually in its territory instructing farmers in the fundamental principles of their art, studying territorial conditions, with the hope that they may discover new uses to which the soil of that particular place may be put to advantage, and making the results of their efforts known to those who may want to benefit by it. The Southern Railway has had plenty of experimental farms, but the trouble seems to have been that seeing isn't always believing, and the southern planter not only has to be shown and convinced but also persuaded to adopt methods that are foreign to his established traditions. The results, however, obtained in this work of education, as well as the work of interesting capital and settlers in the South, has at last got past the preliminary stage on the Southern. The successful operation of the great number of manufacturing plants that have been established, in good part through the efforts of the industrial department, along the lines of the railway are such strong arguments in themselves that the work of the industrial department in persuading a man that it is at least worth while thoroughly to investigate the opportunities offered has become materially less. In work of this kind after a fair start has been made the results become cumulative; the snowball grows at a constantly increasing rate without the expenditure of a proportionately greater amount of labor.

LOCATING THE POINT OF FROG.

We are indebted to T. H. Brown, assistant engineer of the Baltimore & Ohio, for the following description of a method for locating the point of frog. The accompanying diagram illustrates a condition often encountered in yard and turnout work which has been neglected in text books and field books for railway engineers. A fault with nearly all books is that turnout problems are treated in a manner which precludes the possibility of using formulae presented therein for any work involving standard lengths of frogs, lead, etc.

Having the point of intersection of the center line of the lead track with any other track the problem is to determine the dis-



Locating the Point of Frog.

tance to move forward or backward to locate the point of the frog of a given number, with a given degree of curve back of the heel of the frog. The formula here given requires the frog angle and length of the frog from point to heel to be known, and the angle between the body track and the ladder must be found by measurement. Ordinarily if the point of the frog is located the track can be thrown to position without additional stakes, but if necessary the point K can be located by a single measurement from G. Tables giving distances from point of intersection to point of frog, prepared for different frog angles and for varying values of Δ and R are of great value, not only in field work but in planning yards where space is limited and a minimum degree of curve is desirable.

Let

F =frog angle

R =radius of curve back of frog

H =point to heel

W =width of frog at heel

Δ =intersection angle

$DE=R \tan. \frac{1}{2} (\Delta - F) \cos. F$

$CD=H - (2.354 \sin F + W \sin \frac{1}{2} F)$

$AC=4.766 \cot F$

Then

$AE=DE+CD+AC$

$EI=AE \tan. F$

$BE=EI \cot \Delta$

$AB=(AE-BE)$

If

AB is less than AC

$BC=x=(AC-AB)$

If

AB is greater than AC

$BC=x=(AB-AC)$

A GERMAN REPORT ON AMERICAN METHODS OF RAILWAY CORRESPONDENCE.

Government Engineer Bruno Schwarze, of Halle, who has made a study of American railways, reports on the methods of correspondence and of filing and indexing letters and documents. He notes that communications are directed to persons, and not to offices; to "Mr. N., Superintendent Pittsburgh Division, B. & O. R. R.," and not to "Pittsburgh Division, B. & O. R. R.,"; that they go in the first instance to the man addressed, and not to a central office thence to be distributed to the proper persons. Every official in a somewhat independent position—even the foreman of a shop—has his private secretary, who often works in the same room with his chief. At a touch of the button this clerk appears, takes a seat, without being asked, on the opposite side of the double desk, and takes down in shorthand what his chief dictates; then goes to the typewriter, and in a few minutes has the letter, and if required one or two copies, ready for signature. These clerks, even those of high officers, are often very young men. Technical knowledge is not required of them, and is scarcely necessary. As a rule, they appear very intelligent. The private secretary is almost constantly with his chief, even when he travels. The high officers who have private cars provide a berth in them for their clerks, and the two are often on very confidential and familiar terms. The secretary must, as Mr. Schwarze was told, hear everything, see everything, report to his chief everything that may be of use to him, and be as silent as the grave to everybody else.

What according to German ideas is an unpermissible or even a punishable custom is that in the absence of his chief the secretary signs his full name to letters, indicating only by a flourish attached to the last letter of the name that it is not the chief's own signature, such flourish being an initial of the secretary; and letters with such forged signatures, as we may call them, have full validity in the service. A certain head of an important department was so represented by his 22-year-old clerk while absent on a trip to Europe.

In offices where there is a very large correspondence, the opening of letters is supervised by the chief clerk, who sends them to the desks of the persons who have the several matters in charge, except those which he judges that he can answer himself. Copies of his answers to these he submits to his chief, and a copy is filed. The copies have no signatures.

The different branches of the service being largely independent of each other, there are fewer written orders and reports than in the German service. If the man at the head of a given service thinks a man culpable, he may discharge him on the spot; but he is likely to be very cautious about this, as the trade union to which the man belongs is likely to make trouble if the dismissal was unjustifiable. But this independence of chiefs may result in favoritism in dealing with subordinates.

General News Section.

The Michigan Central tunnel, under the Detroit River, was opened for regular freight trains September 10.

Philadelphia papers say that the strike of conductors and motormen on the street railways of that city in the early part of this year cost the Philadelphia Rapid Transit Company \$2,300,000.

Eleven men were killed and seven injured, on Sunday last, by a cave-in at the western end of the tunnel of the Erie Railroad in Jersey City, where grading is going on for the connection of the old and new lines of the road.

The Atchison, Topeka & Santa Fe has installed a gasoline motor car on the Arkansas Valley line from Holly, Colo., to La Junta. The car is a 200-h.p., 70-ft. McKeen motor car which makes the round trip of 212 miles each day on a schedule of about 25 miles an hour, including stops.

The Pittsburgh, Cincinnati, Chicago & St. Louis has been found guilty on ten counts of violating the Indianapolis smoke ordinance and fined \$1,000 and \$100 costs in the city court. A number of affidavits have been filed against other alleged offending companies, but these will be held over until the supreme court passes on the validity of the ordinance.

The Pennsylvania has installed a telephone system at its east side roundhouse in Indianapolis with 28 stations, one in the home of each member of the wrecking crew. When there is a call for the crew the operator at the roundhouse can instantly connect all the 28 instruments and can ring all 28 of the telephones at one time; and then he can give the message to all the men at once.

The Illinois Central has canceled its contract with the Cusack Sign Co., which controlled the signboard advertising along the road's right-of-way, and it is stated that the large signs which now obstruct the view of Lake Michigan from trains and residences facing the lake will be removed at once. W. L. Park, vice-president, ordered this change, which is in pursuance of a policy of beautifying the right-of-way.

Two months longer are allowed the railways of Alabama in which to comply with the citation of the Railroad Commission to show cause why sanitary closets are not installed in every station in the state. This is the result of a conference last week with 35 railway representatives. The commission proposes also to require cuspidors and window screens in passenger cars and portable steps for all coaches.

The Chicago, Milwaukee & Puget Sound on September 7 resumed traffic over its lines in Montana and Idaho which had been badly damaged by the forest fires. For about 30 miles in the Bitter Root Valley all the bridges were burned. During the interruption due to the fires freight was sent over the Northern Pacific from Missoula, Mont., to Lind, Wash. The C. M. P. S. expects to begin running through passenger trains from Chicago to the Pacific coast by November 1.

The Railway Commission of Canada occupies a pretty large territory. Last week it was sitting at Vancouver to hear complaints of the boards of trade of Dawson and White Horse concerning freight rates on the White Pass & Yukon Railroad. Most of the freight which is the subject of discussion passes through United States territory, being carried over the railway from Skagway to the head of navigation on the Yukon river. The Interstate Commerce Commission has recently decided that it has no authority in that part of Uncle Sam's domain.

Long Island Railroad in Manhattan.

The Long Island Railroad began running passenger trains to and from Seventh avenue, Manhattan, New York City, on September 8, according to the announcements which had been made. The number of trains is about 100 each way daily. On the first day the estimated number of passengers carried was 35,000. A considerable portion of the passengers must have been persons making the trip out of curiosity, as the trains

to and from Long Island City, delivering passengers to and taking them from the East river ferry boats, continued to carry about 75 per cent. of their usual number. Vice-President Rea, of the Pennsylvania, speaking of the virtual completion of this tunnel extension of his road, gives a striking measure of the magnitude of the enterprise in the phrase that nine years have been taken to complete the construction of a railway over which a passenger is carried in nine minutes. The main, or eastern entrance to the station at Seventh avenue is some 900 ft. from the nearest elevated railway line and about half a mile from the Interborough subway, so that to a large portion of the people going to the station, the approach involves some considerable travel on foot. Mr. Rea, in his statement, deplors the fact that the city has not taken action looking to the provision of a new subway through Seventh avenue, and he expresses the hope that the Mayor and the Public Service Commission will promptly see that some progress is made. At present, the Sixth and Ninth avenue elevated lines are having considerably increased traffic; and the surface lines north and south through Broadway, Sixth avenue, Seventh avenue, Eighth avenue and Ninth avenue, and east and west through 34th street are running additional cars to accommodate the Long Island passengers.

The new time-tables of the Long Island Railroad show how the tunnel will save time. All trains from the Pennsylvania station at Seventh avenue leave from six to seven minutes earlier than the boats for the same trains formerly left the Manhattan side of the 34th street ferry. This means a saving of about 15 minutes. For example, the time-table shows that Kensington, Great Neck, can be reached from the Seventh avenue terminal by one train in 26 minutes. Before the tunnels it required 45 minutes from Kensington to the 34th street side of the Long Island ferry and 10 minutes more before a passenger reached Seventh avenue, if that were his destination.

F. H. Niles Tells of Illinois Central Grafting.

F. H. Niles, formerly president of the Blue Island Car & Equipment Company, testifying on September 8 at the trial of F. B. Harriman, C. L. Ewing and J. M. Taylor, formerly officers of the Illinois Central, and charged with grafting in connection with the repair of cars for this road, told in detail of the organization of the Blue Island Company and of the relations of various officers of the Illinois Central with it. Mr. Niles said that the matter of organizing the Blue Island Company was first suggested to him by Mr. Taylor, then general storekeeper of the Illinois Central, at Taylor's residence in Chicago in June, 1907. Taylor told him that he was interested in the Ostermann Manufacturing Company and was making a "good thing" out of it, and that he and some of his friends were thinking of starting a car repair company. Out of this conversation grew the organization of the Blue Island Car & Equipment Company under the laws of South Dakota, with a capital of \$150,000. At the start Taylor, Harriman and Ewing each took 100 shares of stock, and Joseph E. Buker took 10. William Renshaw did not take any. The capital stock was subsequently increased to \$300,000 and then to \$450,000, and in the fall of 1909 to \$500,000. The stock had a par value of \$100, but was recorded as having been fully paid for at the start on payment of \$25 a share in cash. When the stock was increased the new shares were issued pro rata to the original stockholders for \$1 each. Niles testified that in January, 1910, the following were among the stockholders in the company: I. G. Rawn, 714 shares; F. B. Harriman, 639 shares; C. L. Ewing, 639 shares; J. M. Taylor, 487 shares; Elmer E. Wilson, assistant storekeeper of the Illinois Central, 15 shares; Joseph E. Buker, superintendent of the car department, 10 shares; T. M. Borrowdale, assistant superintendent car department, 10 shares; T. E. Barton, master mechanic Burnside shops of the Illinois Central, 15 shares.

The stock owned by Rawn, Harriman, Taylor and Ewing, Niles said, was issued in his name, and the dividends were paid to him and transferred to the real owners by his personal check, by payments in cash, and, in some instances, in the form of bonds of the Illinois Central and of Nelson Morris & Company,

which Niles purchased for Rawn and Harriman and delivered to them. Dividends for Rawn and Harriman usually were paid by check to Taylor and later to Ewing, while Taylor and Ewing were paid directly by Niles. Becoming suspicious that the banks were being watched, Harriman, according to the witness, directed that his and Rawn's profit should be paid to A. C. Goodrich, formerly a clerk in Harriman's office. The books of the Blue Island Car & Equipment Company were destroyed in January, 1910, just before its reorganization under the name of the Blue Island Rolling Mill & Car Company. Owing to this, the witness was unable to give the exact figures regarding all the dividends that had been paid on the stock. The first dividend, which was paid in December, 1907, was 10 per cent. Other dividends of 10 per cent. were paid from time to time, and finally in December, 1909, a 30 per cent. dividend was paid. The total business done by the company during the period of its existence amounted to about \$1,500,000, and it paid dividends aggregating, the witness estimated, \$400,000. Niles identified 55 canceled checks on three different banks in Chicago, which had been signed by him and on which money was realized which, he said, finally reached different officers of the Illinois Central. On the backs of some of these checks were written the words "Part to F. B. H.," meaning Harriman, and on others the words "Part to I. G. R.," meaning Rawn. Niles said that he wrote these memoranda on the backs of the checks after they had been cashed and returned to him, so that he might have information that would indicate to him for whose benefit the checks had been issued. He stated that on one occasion he drew about \$11,000 in currency from the banks and paid it to Harriman personally at the Railway Exchange in Chicago. He said he was directed by Harriman to get the Illinois Central bonds for Rawn and to get the Nelson Morris & Company bonds for Harriman himself, and that he delivered the Nelson Morris & Company bonds to Harriman personally and left the Illinois Central bonds for Rawn at the latter's house.

The evidence showed that the actual amount of capital invested in the Blue Island Car & Equipment Company, on which \$400,000 in dividends was paid in about two years, was about \$37,000. The evidence indicated that out of the \$400,000 in dividends over \$300,000 was received by the officers and employees of the Illinois Central. The witness said that the bills against the Illinois Central were padded under his direction. He also said that in the early history of their business Buker directed that no charge for repairing a freight car should exceed \$225, and that this was later increased to \$250 and finally to \$275. Taylor was on the board of directors of the Blue Island Company for a year and then resigned because it was feared that his connection with the company might give rise to suspicion. Niles said that at different times about 1,000 cars were repaired by the Blue Island Company for other roads than the Illinois Central, including the Rock Island, the Chicago & Eastern Illinois, the Chicago Great Western, the Santa Fe and the Missouri Pacific, but that the bills for this work were made out on the regular contract basis of 15 per cent. profit over cost. He stated that no officers of these roads were interested in the Blue Island Company and that, in consequence, the handling of their business was not very profitable to it.

Fred C. Peck, former bookkeeper for the Ostermann Manufacturing Company, testified to having called on various officers of the Illinois Central and telling them that he knew of a way by which they could save \$30,000 a month on the repair of their cars, but he said that they refused to pay any attention to his statements.

Car Ferry Disaster on Lake Michigan.

On Friday morning last car ferry No. 18 of the Pere Marquette Railroad, bound from Ludington, Mich., to Milwaukee, fully loaded with freight cars, sank in the middle of Lake Michigan, and 27 persons were drowned. Fourteen of these appear to have been members of the crew, including the captain and most (or all) of the officers; two were stowaways, and the rest passengers. Car ferry No. 17 was near by and the men of its crew succeeded in saving 15 of the crew of No. 18. Boat No. 17 had been brought to the scene by a wireless telegraph message. The cause of the disaster is a mystery. Besides the 27 persons mentioned, two of the crew of No. 17 lost their lives in trying to rescue the men of No. 18.

Railway Signal Association.

Secretary C. C. Rosenberg has issued an advance notice of the annual meeting at Richmond, Va., in October, containing a considerable number of proposed amendments to the constitution, and the reports of the committees on mechanical interlocking, on power interlocking, on electrical signaling for electric railways and on automatic stops and cab signals. A separate supplement, filling 183 pages, contains an elaborate index to signal literature, which has been prepared by a special committee for the promotion of signaling education, of which W. J. Eck, of the Southern, is chairman, and A. D. Cloud, of the *Signal Engineer*, is vice-chairman. This is a thorough and exhaustive work. The principal items in the order of business for the annual meeting are as follows:

Tuesday, October 11.

10:00 a. m. Opening.
11:15 a. m. Proposed Amendments to the Constitution.
12:00 noon. Mechanical Interlocking.
2:30 p. m. Power Interlocking.
4:30 p. m. Signal Practice.

Wednesday, October 12.

9:00 a. m. Report of Sub-Committee on Standards.
10:30 " Automatic Block Signaling.
11:30 " Electric Signaling for Electric Railroads.
12:15 p. m. Automatic Stops and Cab Signals.
1:30 p. m. Adjourn for the day. Visit Exhibits.

Thursday, October 13.

9:00 a. m. Wires and Cables.
10:45 " Storage Battery.
11:15 " Signal Failures.

H. M. Buck, secretary of the Signal Appliance Association, 30 Church street, New York City, has issued the announcement of the arrangements for exhibits at Richmond, together with a program of the social functions proposed in connection with the annual meeting. A space 65 ft. x 80 ft. has been reserved at the Jefferson Hotel for exhibits, and parties desiring space should send in their applications to Mr. Buck at once, together with a check for the annual dues, \$50.

With the index above referred to, Mr. Rosenberg sends out a circular in which the executive committee suggests that the work be printed as an independent bound volume, in cloth binding, separate from the Proceedings, to be sold at, probably, \$1.

The first change proposed in the constitution is one to divide the eastern from the western part of the country by a line through the middle of Lake Michigan and thence south along the eastern boundary of Illinois, instead of by a line through Buffalo and Pittsburgh. This is proposed by T. S. Stevens, W. W. Slater and other western members. Following these are eight proposed amendments, all submitted by W. J. Eck, A. H. Yocum and other eastern men. First, they propose to do away with the necessity for dividing the country by enlarging the executive committee (to be called the Board of Direction). The board would consist of president, first vice-president, second vice-president, secretary-treasurer, eight directors and the three latest living past presidents. Four of the directors would be elected each year. As the first vice-president retired, after a two years' term, the second vice-president would take his place. It is proposed to have the nominating committee each year name members for the following year, and to have always on this committee three past presidents; the senior past president to be its chairman. The next amendment improves the provisions for nominating officers by letter ballot preceding the annual meeting. A paragraph is introduced allowing a voter to change his vote at any time before noon on the first day of the annual meeting. Another proposition is to give the Board of Direction the power to decide whether or not an active member may retain his membership when he goes out of the railway service. Another requires the president to have the approval of the Board of Direction in selecting members of the standing committees.

The secretary presents an informal statement of the reasons for and against holding the annual meeting each year in Chicago in March.

Master Car and Locomotive Painters' Association.

The 41st annual convention was opened Tuesday morning, September 13, at the Southern hotel, St. Louis, Mo., with John D. Wright, Baltimore & Ohio, presiding. The membership attendance was 161, with 170 guests. The convention opened with an invocation and an address of welcome by the mayor of St. Louis, to which R. E. Miller, Delaware, Lackawanna & Western, responded. The secretary's report showed a total membership of 268 and a balance of \$200.50 on the books. The election of officers resulted in the following: J.

H. Pitard, Mobile & Ohio, president; John T. McCracken, Interborough Rapid Transit Co., first vice-president; John Hartley, Atchison, Topeka & Santa Fe, second vice-president; A. P. Dane, Boston & Maine, secretary and treasurer. The regular program was then taken up.

Forty-seven supply firms were represented, and temporary officers were elected as follows: W. E. Orr, C. A. Willey Co., New York, president; H. G. Kittredge, Kay & Ess Co., Dayton, Ohio, secretary; William Marshall, Anglo-American Varnish Co., Newark, N. J., treasurer. The entertainments, arranged by T. J. Lawlor, American Roll Gold Leaf Co., Providence, R. I., consist of an automobile and theatre party on Tuesday, card party and river trip on Wednesday, and an inspection of the Anheuser-Busch plant and the annual ball on Thursday. The supply companies made no exhibits, with the exception of a small display in the sample rooms of the hotel.

Chicago Signal Club.

The Chicago Signal Club held its second meeting on Tuesday, September 6, at the office of *The Signal Engineer*, Plymouth building, Chicago. The attendance, being representative of practically all of the signal departments in Chicago, showed that great interest is being taken in the club and its work. A resolution was adopted "that the purpose of the Chicago Signal Club is only to bring the members of the various signal departments together at intervals so that the members may receive the benefit of each other's experiences and opinions and may profit by discussion and study of the problems constantly arising in their work." The subjects scheduled for discussion included mechanical towers, lead-outs, wire numbering and the maintenance of potash batteries. By special request of the club, F. J. Lepreau gave a talk on the care of primary cells, and many interesting points were brought out. The discussion following his talk occupied the greater part of the evening, so that time for only one subject, wire numbering, remained, and the other subjects were postponed to the next meeting, which will be held on September 26 at 7 p.m. at the same place. W. H. Arkenburgh, of the signal department of the Chicago, Rock Island & Pacific, at Chicago, is chairman of the club, and A. D. Cloud is secretary.

Salt Lake City Transportation Club.

The Salt Lake City Transportation Club, Salt Lake City, Utah, was organized at a meeting on September 9. The following officers were elected: President, W. F. Yeo, traveling passenger agent, Pennsylvania Lines; vice-presidents: D. R. Gray, district freight agent, Oregon Short Line; J. A. Foley, commercial agent, Illinois Central; C. J. McNitt, auditor Oregon Short Line; H. E. Van Housen, superintendent, San Pedro, Los Angeles & Salt Lake; J. C. Dailey, general superintendent, Denver & Rio Grande; treasurer, Ira H. Lewis, assistant cashier, Denver & Rio Grande; secretary, J. W. Ellingson, contracting freight agent, San Pedro, Los Angeles & Salt Lake. Any employee of a transportation company living in Salt Lake City is eligible to resident membership; outside railway men are eligible to non-resident membership, and newspaper men are eligible to honorary membership.

Joint Car Inspectors' Association.

The Chief Joint Car Inspectors and Foremen's Association of America held its annual meeting at Washington, D. C., last week. The election of officers for the ensuing year resulted as follows: Henry Boutet, Cincinnati, president (re-elected); F. W. Trapnell, Kansas City, vice-president (re-elected); Stephen Skidmore, Cincinnati, secretary and treasurer (re-elected); T. J. O'Donnell, of Buffalo, F. C. Shultz, of Chicago, William McMunn, of New York, J. L. Stark, of Columbus, and A. Berg, of Erie, executive committee.

Cleveland Passenger Club.

This is an organization of traffic men in the city of Cleveland which has lately been established. J. K. Dillon, assistant general passenger agent of the Pennsylvania lines, is president.

Roadmaster's and Maintenance of Way Association.

See Late News columns for report of opening sessions of the convention in Chicago.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.
 AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Scranton, Pa.; next meeting June 22, 1911; Niagara Falls, N. Y.
 AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—C. M. Buft, Boston, Mass.; next meeting, St. Paul, Minn.
 AMERICAN ASS'N OF LOCAL FREIGHT AGENTS' ASS'NS.—G. W. Dennison, Penna. Co., Toledo, Ohio.
 AMERICAN ASS'N OF RAILROAD SUPERINTENDENTS.—O. G. Fetter, Carew Bldg., Cincinnati, Ohio.
 AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 24 Park Place, New York; semi-annual, Nov. 16; St. Louis, Mo.
 AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago; Oct. 18-20; Denver, Colo.
 AMERICAN RAILWAY ENGINEERING AND MAINT. OF WAY ASS'N.—E. H. Fritch, Monadnock Bldg., Chicago; March 21-23, 1911; Chicago.
 AMERICAN RAILWAY INDUSTRIAL ASSOCIATION.—G. L. Stewart, St. L. S. W. Ry., St. Louis, Mo.; May 9, 1911; Detroit, Mich.
 AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony Building, Chicago.
 AM. RAILWAY TOOL FOREMEN'S ASS'N.—O. T. Harroun, Bloomington, Ill.
 AM. SOC. FOR TESTING MATERIALS.—Prof. E. Marburg, Univ. of Penn., Phila.
 AM. SOC. OF CIVIL ENGS.—C. W. Hunt, 220 W. 57th St., N. Y.; 1st and 3d Wed., except July and Aug.; annual, Jan. 18-19, New York.
 AM. SOCIETY OF ENGINEERING CONTRACTORS.—D. J. Haner, 13 Park Row, New York; annual, Sept. 27-29; St. Louis, Mo.
 AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 29th St., New York; annual, Dec. 6-9; New York.
 AMERICAN STREET AND INTERURBAN RAILWAY ASS'N.—H. C. Donecker, 29 W. 39th St., New York; Oct. 10-14; Atlantic City.
 ASSOCIATION OF AM. RY. ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago; April 26, 1911; New Orleans, La.
 ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago; May, 1911; Montreal, Can.
 ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—G. B. Colegrove, I. C. R.R., Chicago; annual, Sept. 27-30; Chicago.
 ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 135 Adams St., Chicago; June 19, 1911; Boston.
 ASS. OF TRANS. AND CAR ACC. OFFICERS.—G. P. Conard, 24 Park Place, N. Y.; Dec. 13-14, Chicago; June 20-21, 1911, Cape May City, N. J.
 CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 1st Tues. in month, except June, July and Aug.; Montreal.
 CANADIAN SOCIETY OF CIVIL ENGS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursdays; Montreal; annual, last week January.
 CAR FOREMAN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month; Chicago.
 CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Friday in January, March, May, Sept. and Nov.; Buffalo.
 ENGINEERS' SOCIETY OF PENN.—E. R. Dasher, Box 704, Harrisburg, Pa.
 ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton bldg., Pittsburgh; 1st and 3d Tues.; annual, Jan. 17, 1911; Pittsburgh.
 FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Rich. Fred. & Pot. R.R., Richmond, Va.; 20th annual, June 21, 1911; St. Paul, Minn.
 GENERAL SUPERINTENDENTS' ASS'N OF CHICAGO.—H. D. Judson, 209 Adams St., Chicago; Wednesday preceding 3d Thursday; Chicago.
 INTERNATIONAL MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York; next convention, Omaha, Neb.
 INTERNAT'L RY. FUEL ASS'N.—D. B. Sebastian, La Salle St. Station, Chicago.
 INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, D. & I. R. Ry., Two Harbors, Minn.
 INT. RY. MASTER BLACKSMITHS' ASS'N.—A. L. Woodworth, Lima, Ohio.
 INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, rue de Louvain, 11 Brussels; 1915, Berlin.
 IOWA RAILWAY CLUB.—W. B. Harrison, Union Station, Des Moines, Ia.; 2d Friday in month, except July and August; Des Moines.
 MASTER CAR BUILDERS' ASS'N.—J. W. Taylor, Old Colony Bldg., Chicago.
 MASTER CAR AND LOCO. PAINTERS' ASS'N OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass.; annual, Sept. 13-16; St. Louis.
 NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, ex. June, July, Aug. and Sept.; Boston.
 NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August; New York.
 NORTH-WEST RAILWAY CLUB.—T. W. Flanagan, Soo Line, Minn.; 1st Tues. after 2d Mon., ex. June, July, August; St. Paul and Minn.
 NORTHERN RAILWAY CLUB.—C. L. Kennedy, C., M. & St. P., Duluth; 4th Saturday; Duluth, Minn.
 OMAHA RAILWAY CLUB.—A. H. Christiansen, Barker Bldg.; Second Wed.
 RAILWAY CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City; 3d Friday in month; Kansas City.
 RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, Pittsburgh, Pa.; 4th Friday in month, except June, July and August; Pittsburgh.
 RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, 12 North Linden St., Bethlehem, Pa.; annual, Oct. 11-13; Richmond, Va.
 RAILWAY S'KEEPERS' ASS'N.—J. P. Murphy, Box C. Collinwood, O.; annual, May, 1911.
 RICHMOND RAILROAD CLUB.—F. O. Robinson; 2d Monday; Richmond.
 ROADMASTERS' AND MAINTENANCE OF WAY ASS'N.—Walter E. Emery, P. & P. U. Ry., Peoria, Ill.; annual, Sept. 13-16; Chicago.
 ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug.; St. Louis.
 SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago; Oct. 25 and 26; Hotel Chamberlin, Old Point Comfort, Va.
 SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. R. Ry., Montgomery, Ala.; annual, Oct. 20; Atlanta.
 SOUTHERN & SOUTHWESTERN R.R. CLUB.—A. J. Merrill, Prudential Bldg., Atlanta; 3d Thurs., Jan., Mar., July, Sept. and Nov.; Atlanta.
 TOLEDO TRANSPORTATION CLUB.—L. G. Macomber, Woolson Spice Co., Toledo; 1st Sat.; annual, May 6, 1911; Toledo.
 TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; 1st Sat. after 1st Wed.; annual, Dec. 13; Buffalo.
 TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August; New York.
 TRAIN DESPATCHERS' ASS'N OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago; annual, June 20, 1911; Baltimore.
 TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo.
 WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg; 2d Monday, except June, July and August; Winnipeg.
 WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, Monadnock Bldg., Chicago; Wednesdays, except July and August; Chicago.

Traffic News.

About 50 railway traffic men of Salt Lake City, Utah, are taking measures to establish a railway club similar to that in St. Louis.

"The Way-Bill" is a new paper which made its first appearance recently. It is published monthly by the Traffic Club of Chicago and edited by the publicity committee of that organization. It is devoted entirely to the affairs of the club.

The Atchison, Topeka & Santa Fe and 87 other roads have secured from the United States Circuit Court, at St. Paul, a hearing, which will be begun October 12, on their application for an injunction against the enforcement of the reduced rates on oranges and lemons from the Pacific to the Atlantic coast recently ordered by the Interstate Commerce Commission.

The Wells-Fargo Express has made a general reduction, averaging 16 per cent., in its rates on lines in the state of Oregon, except between places where the present rate is 60 cents per 100 lbs. or less. The highest rate between any two points in Oregon is \$3.75, and this will be reduced to \$2.75. These reductions follow extended negotiations with the State Railway Commission.

Washington reports say that the Interstate Commerce Commission will within a few weeks make a general ruling on the long and short haul clause of the Interstate Commerce Law as revised last June. As the law now stands, rates for a long distance, which are less than those for a short, cannot be made except after the approval of the commission. Many applications have already been received from railways for approval of existing rates which do not comply with the rule.

The Interstate Commerce Commission is issuing this week a supplemental order in the rate hearings. A large number of tariffs filed by the roads west of Chicago since the beginning of the hearings quote advanced rates on commodities not named in the former tariffs, and are worded to take effect November 1, to which date all the other tariffs were postponed. The present order formally calls the reconvened hearing in Chicago on September 19. It is expected that Commissioner Prouty will be in Chicago on the 19th.

Commissioner Prouty, of the Interstate Commerce Commission, took testimony at Los Angeles, Cal., on September 9, regarding the complaint of the citrus fruit shippers in California that the trans-continental railways make excessive charges for the refrigeration of fruit. The shippers say that the railways charge from \$60 to \$75 per car for icing and that this is exorbitant. They ask the commission to require the railways to let them pre-cool their own fruit and ice their own cars for shipment. They claim that the railways do not pre-cool the fruit properly before putting it into the cars, and that a second icing is necessary, thus adding to the expense of shipment. The railways entered a general denial of all these charges.

When the state railway commission of Texas had before it a few months ago the proposition to reduce the freight rate on cotton shipments one of the arguments advanced by the railways against the proposed action was that should a reduction be made the cotton grower would not be benefited; that the amount of the reduction would be absorbed by other interests. The commission saw fit to overrule the objections of the roads and the rate was ordered reduced 4 cents per 100 lbs. from the principal Texas points to Galveston. That the argument of the railways was at least partly correct is shown by the recent announcement that the steamer lines out of Galveston have raised the ocean rate on cotton 2 cents, thus nullifying to the extent of 50 per cent. the benefit that the state commission expected to give to the cotton grower. This increase of 2 cents by the steamer lines will go into effect September 10, and, according to reliable reports a second raise of another 2 cents is in contemplation. If this is done all of the profits or revenues, amounting to about \$1,000,000 in a year, based on a normal Texas crop of cotton, that the commission's reduction takes from the railways, will go to the steamship lines, and the cotton grower is in the same position that he was before the rate was reduced.

Traffic Agreement Between Frisco and Harriman Lines.

The traffic arrangement between the St. Louis & San Francisco and the Sunset Central lines of the Southern Pacific, which has already been referred to in the columns of the *Railway Age Gazette*, will go into effect on October 1. Schedules for the through trains to be operated by these roads jointly are now being worked out.

The Frisco System operates lines from St. Louis, Mo., and Kansas City to North Texas gateways, including Dallas, Sherman and Ft. Worth. It also operates lines from New Orleans, La., to Brownsville, Tex., and has close affiliations with the National Railways of Mexico. These two parts of the system are not connected by any line owned or controlled by Frisco interests.

The Sunset Central lines of the Southern Pacific operate the Houston & Texas Central and the Texas & New Orleans, which has lines from New Orleans, La., El Paso, Tex., and from all south Texas points to the north Texas gateways, but these lines have no physical connection or definite arrangements for reaching the allied Harriman lines at Kansas City.

The Harriman lines have contemplated the construction of a line between Dallas, Tex., and Kansas City. The Frisco lines have also given consideration to the matter of building a line through the north Texas gateways to Houston or some other point in south Texas. As all other large railway systems serving Texas have lines both north and south of the Red river, they are all, of course, competitors of either the Frisco lines, the Southern Pacific lines, or both.

There were two ways by which the Harriman and the Frisco interests could meet this competition—by individually building lines to connect their now disconnected lines, or by entering into a traffic agreement under which they would act together in handling business between Kansas City and New Orleans and south Texas points. The latter arrangement, under which the construction of additional lines on the part of both is avoided, has been the outcome of the situation.

The close traffic contract which has been made extends over a period of ten years, and it is intended to give freight and passenger service by the through route thus formed which will be run over the new route between Galveston, Tex., and Houston on the one hand and Kansas City and St. Louis on the other. The "Texan," leaving Galveston at 6:30 a.m., will run through to St. Louis, and returning will leave St. Louis at 9 a.m. The "Hustler," leaving Galveston at 9 a.m., will run through to Kansas City, and returning will leave Kansas City at 5 p.m. The "Meteor," leaving Galveston at 7:25 p.m., will run through to St. Louis, and returning will leave St. Louis at 8:25 a.m. This is the present plan, which, however, may be slightly changed.

Condition of Corn and Wheat.

The Bureau of Statistics of the Department of Agriculture reports the average condition of corn on September 1 as 78.2, as compared with 79.3 last month, 74.6 on September 1, 1909, 79.4 on September 1, 1908, and 79.5 the ten-year average on September 1. In the principal corn states the averages were: Illinois, 86; Iowa, 82; Texas, 75; Kansas, 59; Missouri, 83; Nebraska, 68. The average condition of spring wheat when harvested this year was 63.1, as compared with 61.0 last month, 88.6 when harvested in 1909, 77.6 in 1908 and a ten-year average when harvested of 78.0. The averages in the principal states were: North Dakota, 33; Minnesota, 83; South Dakota, 73; Washington, 60. The average condition of apples on September 1 was 46.8, against 47.8 last month, 44.5 on September 1, 1909, 52.1 in 1908, and a ten-year average on September 1 of 54.7.

Car Surpluses and Shortages.

Arthur Hale, chairman of the committee on relations between railways of the American Railway Association, in presenting statistical bulletin No. 77-B, giving a summary of car shortages and surpluses by groups from April 28, 1909, to August 31, 1910, says:

"There is a reduction in the surplus of 18,738 cars, or 23.8 per cent. Of this 6,969 are box cars, a decrease of 25.5 per cent. in this class, while the decrease in coal and gondola cars is 8,662, or 38.0 per cent. There is quite an increase in the short-

age, the total for this report being 9,293 cars, of which 4,594 are box cars and 2,964 coal and gondolas.

"The decrease in surplus is quite general, excepting in group 6 (Northwestern), where the reductions in coal and miscellaneous (the latter principally stock cars), were offset by an increase in the box surplus, and in group 11 (Canadian), which

on our last bulletin, reports a decrease of over 40 per cent., with shortages in all classes totaling 777 cars. The reduction in coal car surplus is quite heavy in groups 2 (Eastern), 3 (Middle) and 5 (Southern), while group 4 (North Atlantic) reports a shortage in this class of 2,120 cars, an increase of 1,120 cars since our last bulletin."

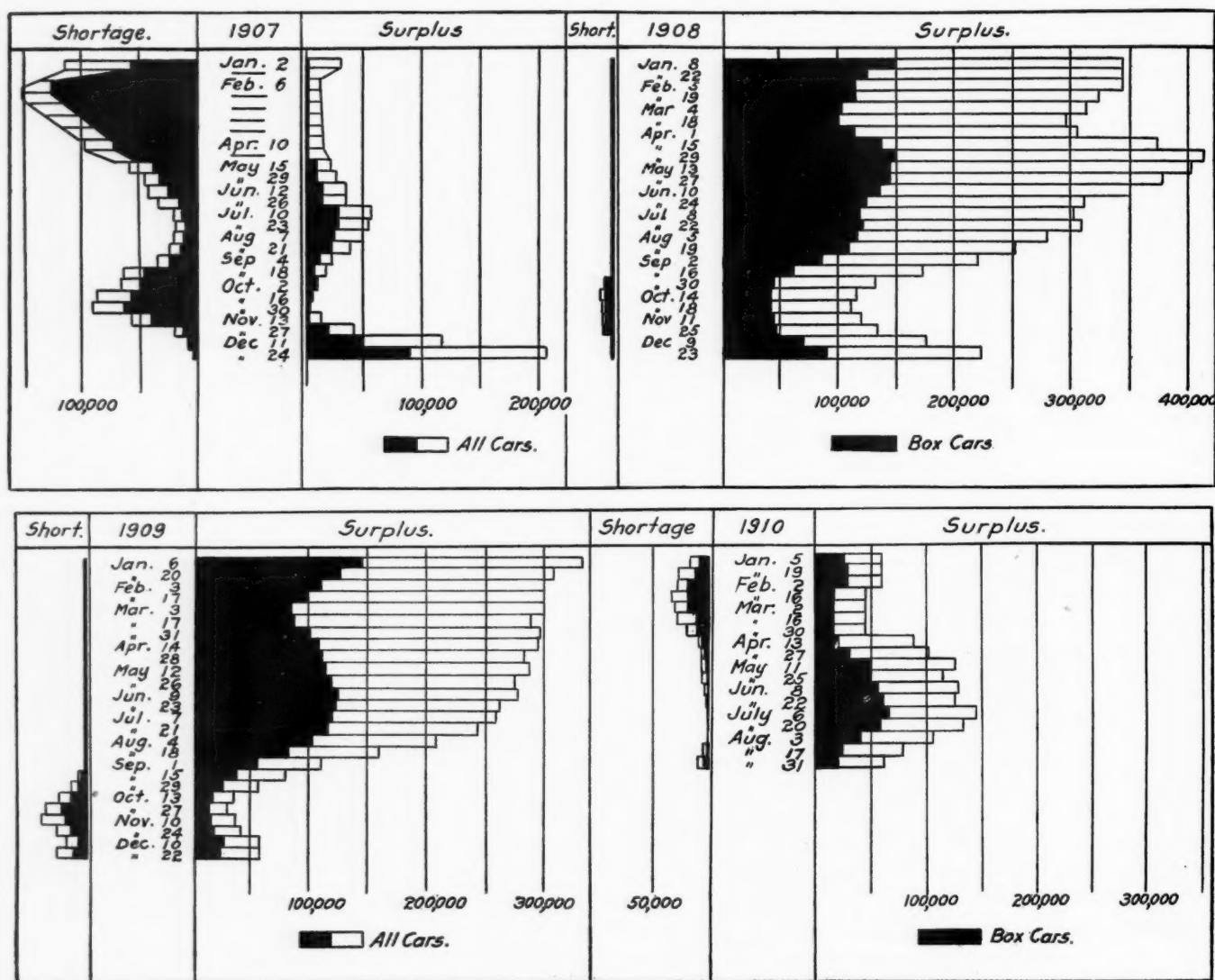
CAR SURPLUSES AND SHORTAGES.									
Date.	No. of roads.	Surpluses				Shortages			
		Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Box.	Flat.	Coal, gondola and hopper.	Other kinds.
Group *1.—August 31, 1910.....	8	20	493	333	216	205	211	341	20
" 2.—" 31, 1910.....	22	1,781	57	4,899	6,618	245	1	8	85
" 3.—" 31, 1910.....	22	4,590	283	2,176	2,827	330	115	12	9
" 4.—" 31, 1910.....	10	675	24	227	344	1,094	274	2,120	200
" 5.—" 31, 1910.....	20	667	118	117	1,256	617	150	312	0
" 6.—" 31, 1910.....	20	7,460	989	2,176	2,802	301	2	50	108
" 7.—" 31, 1910.....	3	226	8	0	444	0	0	45	0
" 8.—" 31, 1910.....	13	1,093	110	2,030	2,260	662	15	11	7
" 9.—" 31, 1910.....	11	794	273	212	735	64	0	0	0
" 10.—" 31, 1910.....	20	1,495	927	1,911	3,710	707	146	15	300
" 11.—" 31, 1910.....	6	1,514	206	27	899	369	0	50	92
Total	155	20,315	3,488	14,108	22,111	4,594	914	2,964	821

*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland, and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan, and Western Pennsylvania lines; Group 4—West Virginia, Virginia, and North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida lines; Group 6—Iowa, Illinois, Wisconsin, Minnesota, and North and South Dakota lines; Group 7—Montana, Wyoming and Nebraska lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Oregon, Idaho, California and Arizona lines; Group 11—Canadian lines.

also reports an increase in box car surplus. This situation seems to indicate the accumulation of box cars for the movement of grain from the Northwest.

"Group 1 (New England), which shows an increased surplus

The accompanying table gives surpluses and shortages by groups from the last period covered by the report, and the charts show total surpluses and shortages bi-weekly in 1907, 1908, 1909 and 1910.



Car Surpluses and Shortages in 1907, 1908, 1909, and 1910.

Condition of Railways of Texas.

H. G. Askew, statistician of the railways of Texas, has given out a statement regarding the earnings and expenses in the fiscal year 1909 and 1910 of 32 roads in that state having about 92 per cent. of the mileage in the state and doing about 98 per cent. of the business. The figures given by Mr. Askew differ somewhat from those given out by the Texas railway commission, which were published in the *Railway Age Gazette* of September 9, page 479. Mr. Askew's figures are as follows (cents omitted):

Total operating revenues—	
1910.....	\$98,378,313
1909.....	94,190,160
Increase for 1910.....	\$4,188,152
Total operating expenses—	
1910.....	\$75,315,284
1909.....	70,703,342
Increase for 1910.....	\$4,611,942
Net operating revenue—	
1910.....	\$23,058,028
1909.....	23,486,818
Decrease for 1910.....	\$428,789

After giving the foregoing figures, Mr. Askew continues in part: "A thing for the general reader to bear in mind is that neither 'net operating revenue' nor 'income from operation' means that the sums set opposite them are the clear profits to the companies after all necessary and unavoidable expenditures have been paid out of the receipts, earnings or revenues. Far from it. In the 1910 period, more than \$29,000,000 of expenditures, and in the 1909 more than \$26,000,000 of expenditures, not included in the operating expenses, remain to be shown in the statements before they are complete.

"To give a clearer idea of the final results of the 32 roads for the two 12-month periods, I will now continue the statement:

1910 Period.

Net operating revenue, shows in the foregoing.....	\$23,058,028
Income from miscellaneous sources.....	1,262,719
Gross corporate income.....	\$24,320,743
Deductions from gross corporate income:	
Interest on funded debt.....	\$12,495,668
Other interest.....	2,597,207
Rentals of tracks, yards and terminals.....	1,502,275
Rentals of equipment.....	2,664,410
Taxes.....	3,051,513
Additions and betterments.....	6,614,891
Other deductions.....	255,010
Total deductions.....	\$29,180,978
Balance, deficit.....	\$4,860,229
1909 Period.	
Net operating revenue, as before stated.....	\$23,486,818
Income from miscellaneous sources.....	848,540
Gross corporate income.....	\$24,335,358
Deductions from gross corporate income:	
Interest on funded debt.....	\$12,117,770
Other interest.....	2,464,233
Rentals of tracks, yards and terminals.....	1,206,395
Rentals of equipment.....	2,394,773
Taxes.....	2,700,258
Additions and betterments.....	5,041,400
Other deductions.....	581,033
Total deductions.....	\$26,505,865
Balance, deficit.....	\$2,170,506

"Thus it will be seen that statements ending with net operating revenue (or as some still say, 'income from operation'), amounting in each year to more than \$23,000,000, would, if not continued to the end, present what some folks call half-truths, causing even many careful readers to form the idea that the railways in Texas were making large net profits, whereas when continued to the point which develops whether or not there was profit or deficit, shows for neither year a profit, but on the contrary a deficit for 1909 of \$2,170,506.70, and for 1910 a deficit of \$4,860,229.80, or for the two years a deficit of more than \$7,000,000.

"It will be observed that the situation is growing worse for the railways, and it may well be asked how, if the foregoing figures are correct (and they are to the best of my knowledge and belief), the railways can still continue in business. In answer, I will say that I have treated the 32 companies as a whole in my statements herein given. Some few of the companies are, while not to say prosperous, making a living. Others are keeping afloat for a while on (so-called) temporary loans, and hoping for better times. This results, however, as to such roads, in a gradual annual increase in the amount of 'other

interest,' the second item in my statements of 'deductions from gross corporate income.' Still, others are in a more fortunate situation.

"The charging by me of additions and betterments against the income derived from the operation of the properties is not sanctioned by the system of railway bookkeeping prescribed by the interstate commerce commission.

"I have not failed to reflect upon whether or not additions and betterments might properly be considered to be somewhat in the nature of a return to the stockholder, in lieu of a cash dividend, by reason of the enhancement of the value of the property, but so far as my observations have gone, the instances are few, if any, where the stockholders have reaped any of the benefits of this enhanced value. The public and the employees have probably received the benefit of most of the improvements, in the directions of speed, safety and comfort, but the cases seem to be few in Texas where a railway company is appreciably nearer a regular dividend paying basis after the expenditures for improvements were made than it was before. Increases in scales of wages, the 'increased cost of living,' which affects the prices of all the materials which a railway company has to purchase, as well as those articles which a private family uses, and the constant nipping, here and there, of transportation rates, practically the only source from which a railway company derives the means with which to meet its necessary and unavoidable expenditures, seem to absorb all of the 'economies in operation,' and other tangible benefits which, under other conditions, might have resulted in some benefit to the owners of the properties as well as the users of them."

Freight Rate Hearing in New York City.

The hearing begun in New York city last week by Examiner Brown, of the Interstate Commerce Commission, on the proposed trunk line freight tariff, was devoted during the first three days largely to the settlement of questions of procedure concerning which lawyers representing merchants' associations asked many questions and offered innumerable criticisms; and the testimony which was given was made up almost entirely of estimates, on the one hand, of the probable increase in income if the proposed new rates were adopted, and, on the other, of the increased expenses due to the advances which have been made in wages. Statements of this kind were presented by an officer of the New York Central, covering 50,000 miles of railway, as reported last week; and by officers of the Baltimore & Ohio, the Pennsylvania, the Delaware & Hudson and other roads, each for itself. On the Baltimore & Ohio the increase in wages, if it had been in force last year, would have amounted to \$2,070,233; proposed rate increases, \$2,308,107. The estimate of freight income is based on the assumption that the volume of traffic would be the same this year as last. To prepare the estimate had taken the services of 275 clerks, working six weeks.

On the Pennsylvania a total pay roll of 87 millions will be increased by about seven millions, or 8.15 per cent. The estimate of increase in freight receipts on the Pennsylvania was made on actual figures of one day in each of six representative weeks of the year 1909. If the proposed increases had been in effect in that year, the increase in revenue would have been \$3,061,579.

The Delaware & Hudson has increased wages \$397,686 a year; probable freight increases by proposed rates, \$172,601 a year. About half the tonnage of this road is coal, on which no increase is proposed, and of the other half five-eighths is not affected.

The Lehigh Valley calculates its increase in wages at \$820,502; proposed increase of receipts, \$756,341. The Lackawanna, the Bessemer & Lake Erie and a number of other roads presented estimates in which the ratio of income to outgo did not vary greatly from those given above.

On cross-examination some of the railway representatives were asked about increases in passenger fares, but the examiner decided that that subject must be left for another hearing; the present deals only with through freight rates. Mr. James, counsel for one of the shippers' organizations, called attention to the fact that commodities on which rates had not been raised, such as sugar, iron, paper, cement and lead, were made by the "trusts."

On Monday of this week J. B. Thayer, third vice-president of the Pennsylvania, gave a general statement of the attitude and

policy of that road. The proposed advance in rates would increase the gross receipts of the company only about 2.3 per cent. Following the year 1900 receipts increased and wages had to be advanced; and again in 1906 the same thing occurred. Each time increases in rates were considered and some advances were made, but in 1902 the company advanced wages several million dollars and also increased the freight rates on many commodities (not class rates). In 1906 this procedure was repeated and rates were advanced on coal, coke, steel and other commodities, but class rates were not touched. Passenger rates are not compensatory, but public sentiment forbids their increase. All of the increases proposed in the tariffs now under investigation have to do with long distance business. No advances are proposed to points within 150 miles of New York. The long distance rates have been too low as compared with those for short distances. From New York to Harrisburg, 200 miles, the first class rate is 33 cents, while to Chicago, over 900 miles, it is only 75 cents. It is right to advance class rates while not advancing those on the heavier commodities because the class rates apply to costly goods, carried in small lots. This is the most costly service dealt with by the freight department. The high speed demanded between New York and Chicago is costly, and the average loading per car is very low. Iron and other commodities were sufficiently advanced in 1906 and before. Asked why iron and steel are carried from Pittsburgh to New York at very low rates Mr. Thayer said that Mr. Carnegie had threatened to build another railway. The Pennsylvania has no further increases in contemplation at this time. Asked if the advance in wages, which has been 33½ per cent. in 10 years, was not compensated for by the increased efficiency of operation, the witness replied that for this greater efficiency millions of dollars had to be invested and the interest on these millions must be paid.

The New York, New Haven & Hartford presented an estimate of increased revenue of \$648,862 yearly, while the increase in wages will be \$1,772,566.

Following Mr. Thayer, C. F. Daly, vice-president of the New York Central, in charge of traffic, gave testimony and opinions in which he agreed with Mr. Thayer on all important points. Increases in rates were considered in 1908, but out of respect to the views of a large number of shippers, action was postponed. In 1909, the question came up again when labor leaders began to air their demands. Had it not been for the increase in wages, rates would have been let alone, in the hope that the increase in business would be sufficient to maintain a reasonable net revenue. Questioned as to the reasons for varying rates on the different classes or commodities, Mr. Daly said that the three upper classes were too low in comparison with the service performed. The advance is infinitesimal as compared with the value of the goods. Asked how the rates had got into such an inequitable condition, Mr. Daly said that rates have never been properly adjusted. The present rate fabric is the result of crazy-quilt work, which had been done to meet conditions as they existed from time to time. The present commodity rates are the result of the action of a great variety of elements. These still constitute the most delicate fabric that exists in the business world.

Most of the day, Tuesday, was spent in the cross examination of Mr. Daly by the lawyers for the shippers' organizations, but little of importance was brought out. The lawyers devoted themselves to the futile task of discovering the bases on which railway traffic men make their rates, but got nothing from Mr. Daly, except that in each case he used his own best judgment. Mr. Daly has spent all his life in the passenger department, and has had charge of freight only about two years, and, therefore, declined to answer many questions about the details of the freight department. He said that other rates not yet touched were too low and ought to be raised. The company hoped to make other advances besides those which have been announced. Many questions were asked both of Mr. Daly and other witnesses as to the capitalizations of railways and as to whether exorbitant profits had not been made in recent years, but this line of talk served mainly to amuse the spectators and brought out nothing new.

D. W. Cooke, of the Erie, gave testimony similar to that of Messrs. Thayer and Daly. He said that the rates from New York to the west were in many cases ridiculously low as compared with the value of the service, and he could not understand why the shippers were protesting at rates which were dirt cheap.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

Frank W. Matthews has been appointed receiver of the San Antonio & Rio Grande at San Antonio, Tex.

Lucius Tuttle, president of the Boston & Maine, has resigned, and Charles S. Mellen, president of the New York, New Haven & Hartford, has been elected acting president of the Boston & Maine.

E. P. Shannon, treasurer of the Oregon Electric at Portland, Ore., has been appointed assistant to President John F. Stevens, of the Oregon Trunk, the Oregon Electric and the United Railways Co.

The National Railways of Mexico having assumed the operation of the Vera Cruz & Isthmus, E. N. Brown, president of the National Railways, has been elected also vice-president of the latter road. Thomas Milan will continue as president of the Vera Cruz & Isthmus, with office at Mexico City, Mexico.

Allen McCarty has been appointed to the new position of general auditor of the Delaware & Hudson, with office at Albany, N. Y., and the following change has been made in the organization of the accounting department: The comptroller will have charge of the general corporate and fiscal accounts and the general auditor will have charge of the operating, revenue and expense accounts.

Henry C. Hudgins, whose appointment as assistant to the president of the Norfolk Southern, with headquarters at Norfolk, Va., has been announced in these columns, was born

September 19, 1841, in Matthews county, Va. Mr. Hudgins attended the Virginia Collegiate Institute at Portsmouth, Va., from 1855 to 1860, and six years later entered the service of the Baltimore Steam Packet Co. as receiving clerk, and was then successively delivery clerk, manifest clerk and chief clerk. In 1870 he went to the Old Dominion Steamship Co. as sub-agent of subsidiary lines, and was also manifest and rate clerk in the office of the main line at Norfolk, until June, 1881, when he was appointed agent of the Norfolk & Southern (now the Norfolk



Henry C. Hudgins.

Southern). The following year he was appointed general freight and passenger agent of the same company, and remained in that position until his recent appointment as assistant to the president.

Edward J. Engel, whose appointment as assistant to the president of the Atchison, Topeka & Santa Fe, with office at Chicago, has been announced in these columns, was born July 28, 1874, at Havana, Ohio. He attended the common schools until 1891 and then spent six months in a high school and later six months in a business college at Sandusky, Ohio. He began railway work in March, 1899, with the Santa Fe, and has been consecutively stenographer in the purchasing department, stenographer to the president and chief clerk in the president's office, from which position he has just been promoted to assistant to the president.

Operating Officers.

C. A. Coolidge, superintendent of the Oregon Electric at Portland, Ore., has been appointed general manager of the United Railways Co., in charge of transportation and main-

tenance, succeeding to the duties of L. B. Wickersham, transferred.

H. H. Hoover, chief train despatcher on the Salt Lake division of the Denyer & Rio Grande at Salt Lake City, Utah, has been appointed assistant superintendent, with office at Salt Lake City. S. L. Racey succeeds Mr. Hoover.

W. A. Purkett has been appointed trainmaster of the Illinois Southern, with office at Ste. Genevieve, Mo., in charge of the Missouri and Illinois divisions, and R. W. Cumming has been appointed chief despatcher, with office at Sparta, Ill.

Wm. Lloyd has been appointed an assistant superintendent on the Idaho division of the Oregon Short Line and the Southern Pacific Lines east of Sparks, Nev., with office at Pocatello, Idaho, succeeding J. H. Woffington, retired. H. W. Joslyn has been appointed an assistant superintendent, with office at Pocatello.

Traffic Officers.

C. B. Davis has been appointed traveling freight agent of the St. Louis & San Francisco, with office at Dallas, Tex.

H. E. Haefer has been appointed general freight and passenger agent of the Gulf, Texas & Western, with offices at Dallas, Tex., and at Jermyrn.

C. L. Rutt has been appointed general freight and passenger agent of the Trinity Valley & Northern, with office at Dayton, Tex., succeeding R. B. Edgar, assigned to other duties.

C. J. Peterson has been appointed a commercial agent of the Chicago, Milwaukee & St. Paul, with office at Cincinnati, Ohio, succeeding G. L. Williams, resigned to engage in other business.

A. J. Puhl, city passenger agent of the Chicago, Burlington & Quincy at Chicago, has been appointed general agent in the passenger department, with office at Chicago, succeeding H. A. Cherrier, resigned to engage in other business. W. B. Byrne succeeds Mr. Puhl.

E. L. Adams, commercial agent of the New York Central Fast Freight Lines at Toledo, Ohio, has been appointed commercial agent of the Lake Shore & Michigan Southern, with office at Toledo, succeeding B. J. Torbron, promoted; there will be no appointment made to fill Mr. Adams' present position.

Harry D. Fry, freight solicitor for the St. Louis & San Francisco at Dallas, Tex., has been appointed traveling freight and passenger agent of the Texas Midland, with office at Houston, Tex., and J. M. Symmonds, traveling freight and passenger agent of the Texas Midland, at Tyrell, has been transferred to Dallas.

Walter R. Morris has been appointed assistant traffic manager of the American-Hawaiian Steamship Co., in charge of Mexican and Central American business, with office at New York. Mr. Morris has been identified with the traffic departments of the Southern Pacific and Pacific Mail at San Francisco and New York since 1888, and resigned to accept this new position.

George E. Farrington, general agent of the Vandalia, with office at Terre Haute, Ind., has retired. Mr. Farrington was born September 24, 1841, at Terre Haute, and began railway work in 1868 as a clerk in the general office of the Terre Haute & Indianapolis. In 1873 he was made general agent, which position he has held with that road and its successor, the Vandalia, continuously to date. He was also for a number of years from 1879 secretary of the Terre Haute & Indianapolis.

Warner W. Croxton, whose appointment as general passenger agent of the Norfolk Southern, with office at Norfolk, Va., has been announced in these columns, was born on August 25, 1880, at Richmond, Va. Mr. Croxton received a high school education, and began railway work on June 1, 1900, as a stenographer in the freight department of the Southern Railway. He was later transferred to the passenger department. He was appointed a traveling passenger agent in March, 1904, at Norfolk, Va., and in October of the following year he was transferred to New York City. In April, 1907, he returned to Norfolk, and in September, 1908, he was transferred to Baltimore, Md. Mr. Croxton went to the Norfolk Southern in September, 1909, as assistant general passenger agent at Norfolk, which position he held at the time of his recent appointment as general passenger agent.

Engineering and Rolling Stock Officers.

C. A. Brandt has been appointed a mechanical engineer of the Cleveland, Cincinnati, Chicago & St. Louis, with office at Indianapolis, Ind.

Henry Connell has been appointed a roadmaster of the Oregon Railroad & Navigation Co., with office at La Grande, Ore., succeeding C. McCann, resigned.

Walter Evans has been appointed superintendent of motive power of the Indiana Union Traction Co., with office at Anderson, Ind., succeeding R. C. Taylor.

L. B. Wickersham, vice-president and general manager of the United Railways Co. at Portland, Ore., has been appointed chief engineer of the Oregon Electric, reporting to the president.

C. E. Priest, district car inspector on the Northern district of the Rock Island Lines at Cedar Rapids, Iowa, has been appointed a car foreman, with office at Inver Grove, Iowa, succeeding A. M. Crain, assigned to other duties. B. W. Venamon succeeds Mr. Priest.

OBITUARY.

Charles A. Marsh, passenger agent of the Atchison, Topeka & Santa Fe at Buffalo, N. Y., died in Syracuse on September 6.

G. P. McAdam, formerly superintendent dining and parlor car service of the Wisconsin Central at Chicago, died in Chicago on September 11.

W. A. Tuley, formerly general passenger agent of the Fort Worth & Rio Grande and the St. Louis & San Francisco at Dallas, Tex., died September 10 at Stephenville, Tex.

L. C. Engler, road foreman of engines of the Hocking Valley, at Columbus, Ohio, was killed in the derailment of a northbound passenger train on that road September 12, near Lemoyne, Ohio.

Lloyd Wheaton Bowers, formerly general counsel of the Chicago & North Western and recently solicitor general of the United States, died on September 9 at Boston, Mass. Mr.



Lloyd W. Bowers.

Bowers was born March 9, 1859, at Springfield, Mass. He graduated from Yale University in 1879, and in 1882 received the LL.B. degree from Columbia College. After practising law for two years in New York he went to Winona, Minn., where he was engaged in the general practice of law, and later moved to Chicago. In 1893 he was appointed general counsel of the Chicago & North Western, and held that position until March, 1909, when he was appointed solicitor general of the United States. He was generally regarded as one of the ablest railway attorneys

in the country. Mr. Bowers was a student at Yale with President Taft, and they had always been close personal friends. The President made the statement since Mr. Bowers' death that had he lived he would have been appointed a justice of the Supreme Court of the United States.

G. J. De Vilbiss, superintendent of motive power of the Hocking Valley at Columbus, Ohio, was killed in the derailment of a northbound passenger train on that road September 12, near Lemoyne, about 11 miles south of Toledo. In 1904 Mr. De Vilbiss was a master mechanic on the Baltimore & Ohio at Newark, Ohio, and in 1907 he was appointed superintendent of motive power on the Hocking Valley. In addition he had also been at various times since 1907 superintendent of motive power of the Toledo & Ohio Central, the Zanesville & Western and the Kanawha & Michigan.

Railway Construction.

New Incorporations, Surveys, Etc.

ARKANSAS ROADS (ELECTRIC).—Residents of Little Rock, Ark., are back of a project to build a line from Little Rock southwest to Hot Springs, 50 miles.

BANGOR & AROOSTOOK.—This company is making preliminary surveys for a line from West Seboois, Maine, north via Chesuncook lake, Chamberlain lake and the Allegash river valley, to Allegash Falls and St. Francis, about 160 miles. Part of the work will be done in the late fall and early winter.

D. Currie & Co. has begun construction work on ten miles of new line, to extend the Van Buren and Grand Isle branch to Upper Madawaska. The line is expected to be in use before the end of the present year.

Work is under way consolidating the Oakfield and Ashland Junction yards into one large freight yard with a new station about 30 rods from the present Oakfield station. The new yard will be more than one mile in length.

CALIFORNIA ROADS.—According to press reports from Oroville, Cal., M. J. Lorraine is making surveys for a line from the eastern border of California, west through the Beckwith valley to Oroville, thence southwest to San Francisco, without passing through Sacramento. The line is to parallel the Western Pacific part of the way. It is said that the new line will be shorter than the Western Pacific.

CANADIAN NORTHERN.—This company is reconnoitering for a route from Edmonton, Alb., northwest to Stewart, B. C., at the head of Portland channel, the most northerly Pacific port in Canada. This route will open up the Peace River valley. During the summer a feasible pass was found from Bear River valley, in which Stewart is located, on the Alaska boundary, eastward to the Nass River valley. Reports previously made by railway engineers indicate that a low maximum gradient is available to and through the Rockies and the Bavine mountains, thence eastward through the valleys of the Parsnip and Peace rivers to the Pouse Coupe prairie, and from Peace river, via Lesser Slave lake, Slave Lake river and Athabasca river to Edmonton.

CINCINNATI, LOUISVILLE, LEXINGTON & MAYSVILLE TRACTION.—An officer writes that work will be started about the first of next year on the section of this projected line, from Covington, Ky., southwest to Owenton, about 45 miles. The company was organized to build from Cincinnati, Ohio, south to Lexington, Ky., with an east and west line from Maysville to Louisville and a connecting line at Dry Ridge, in Grant county, Ky., in all about 250 miles. W. T. S. Blackburn, president, Dry Ridge. The Reliance Engineering Co., Cincinnati, are the engineers.

COPPER RIVER & NORTHWESTERN.—This line is now finished from Cordova, Alaska, north, and part of the material for the steel bridge over the river at mile 155 has been shipped from Seattle, Wash. This is the last steel bridge on the line, and it is expected that track laying will be finished to the river about the time the bridge is in place. The company expects to have the line ready for operation to Kennicott, mile 160, by January, 1911. (Aug. 5, p. 262.)

GALVESTON-HOUSTON (ELECTRIC).—See Texas Roads.

GEORGIA & CAROLINA.—Incorporated in South Carolina, with \$100,000 capital, to build from Hamburg, S. C., opposite Augusta, Ga., on the Savannah river, north to Spartanburg, S. C., 120 miles. The office of the new company will be at Edgefield, S. C. A. W. Jones, C. C. Howard and C. R. Coffin, all of Augusta; A. E. Padgett, Edgefield, and D. Crosland, Aiken, are interested.

GRANT RAILROAD.—Organized in Wisconsin to build from Woodman, Wis., south via Patch Grove and Mount Hope to Bloomington, 26 miles. W. T. Leighton, president, Little Grant; W. E. Lewis, secretary and treasurer, Patch Grove.

GRAND TRUNK PACIFIC.—An officer of the Transcontinental Railway writes that up to July 31, 1910, about 717.5 miles of

main line track had been laid, of which 96.5 miles were laid during 1910. About 95 per cent. of the work has been finished by the Toronto Construction Co., who have subcontracts from the Grand Trunk Pacific for work on sections west of Moncton, N. B. From Moncton west to the Quebec boundary track had been laid on 203 miles up to July 31. The section from Lake Superior junction, where connection is made with the Fort William branch west to Winnipeg, is now in operation. No plans have been made for extending the line east of Moncton.

HUDSON BAY RAILWAY.—According to press reports, construction work has been started on the Hudson Bay line from a point near the approach to the bridge under construction over the Saskatchewan river at The Pass, Keewatin. The northern terminus of the line will probably be at Fort Nelson. (Aug. 19, p. 332.)

KANAWHA, GLEN JEAN & EASTERN.—This company, operating an eight-mile line in Fayette and Raleigh counties, W. Va., will soon have an extension completed to connect with the Virginian Railway. The K., G. J. & E. is owned by coal operators, and mines about 1,000,000 tons of coal each year, it is said, most of which will be carried to tidewater over the Virginian Railway.

LOUISIANA ROADS.—A company is being organized by residents of Orange, La., to build from that place northeasterly to the Red river, about 50 miles. The line will traverse timber lands. Arrangements have already been made for traffic connections at the Red river. It is proposed to put engineers and right-of-way men in the field as quickly as possible so that contracts can be let. S. R. Shepherd, secretary of the Orange Commercial Club, is the principal promoter.

MILWAUKEE WESTERN ELECTRIC.—A certificate of public convenience and necessity has been granted by the Wisconsin Railway Commission to build an extension from the proposed terminus at Beaver Dam, Wis., to Fox Lake, about 10 miles. Work is now under way building from Milwaukee northwesterly to Beaver Dam, 56 miles, with a branch to Waukesha, nine miles. C. A. Chapman, Inc., are the engineers, 1537 Marquette building, Chicago. (Dec. 17, p. 1213.)

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—An officer writes that a contract has been given to Foley, Welch & Stewart, St. Paul, Minn., for building the connecting line to the ore docks in Superior, Wis., also for the ore dock and approaches. (Sept. 2, p. 440.)

MISSOURI, OKLAHOMA & GULF.—Surveys are said to be under way north from Wagoner, Okla., for the proposed extension north, thence east to Joplin, Mo., 120 miles. An extension is also to be built from this line north to Pittsburg, Kan.

MISSOURI, KANSAS & TEXAS.—Plans, it is said, are being made to build a branch from Smithville, Tex., south to Bloomington, 90 miles. Connection is to be made at Bloomington with the new line of the St. Louis, Brownsville & Mexico to Port O'Connor, in Calhoun county. It is understood that the Missouri, Kansas & Texas will secure trackage rights over this line to tidewater at Port O'Connor.

NUECES RIVER VALLEY.—An officer writes that contracts will be let about January 1, to build from Beeville, Tex., west via Lapara, Oakville, Simmons, Tilden, Cotulla, Carrizo Springs and Bermuda to Eagle Pass, about 180 miles. There will be three steel bridges. William A. Frisby, president; George G. Ehrenborg, chief engineer, Beeville.

NORFOLK & WESTERN.—An officer writes that the work to be carried out early next year in Columbus, Ohio, includes the laying of additional tracks in the Joyce avenue yard and the rearrangement of tracks for the purpose of securing more prompt interchange of traffic between the N. & W. and the Pennsylvania lines. The grading work will not be heavy and will be started next spring by the company's men. The track work will also be carried out by the company's men.

OKLAHOMA PUBLIC SERVICE & INTERURBAN.—An officer writes that contracts have been let to Dan Sweeney & Co. and to the M. Ryan Bros. Co. for work on this line. The plans call for a line from Stillwater, Okla., south to Perkins, thence west via Coyle and Langston to Guthrie, also from Stillwater, north to Morrison, and then southeast via Jennings to Sapulpa. There will be one 200-ft. steel bridge, a power house, terminal and car

barns, also a freight house. L. J. Lampke, president, and R. A. Sturgeon, chief engineer, Stillwater. (June 3, p. 1391.)

PINCHER CREEK, CARDSTON & MONTANA.—This company, which proposes to build a 700-mile line from the United States boundary, across Alberta, will apply for an extension of the charter permitting the main line to be built from Pincher creek, Alb., on the Canadian Pacific, north via Calgary and Edmonton into the Peace river country. The project is backed by New York capitalists. It is understood that connection will eventually be made with the Hill system in Montana.

SEABOARD AIR LINE.—This company on September 1 opened an extension of the Dunnellon branch in Florida, from section 20-C Mine to section 34 Mine, 2.71 miles. (June 10, p. 1438.)

SOUTHERN PACIFIC OF MEXICO.—This company has notified the Mexican government that construction work on the line down the Pacific slope has been finished to a point about 10 miles south of the Santiago river in the territory of Tepic. Under the terms of the concession the company has two years more to complete the gap that now exists between Yago and Tequila. This work may be finished within the next 18 months. The southern division cannot be opened for traffic until the bridge over the Santiago river is finished some time early next year. It is said that no application has been made for an amended concession to extend the line further down the coast to the port of Manzanillo, and that such an extension is not contemplated. The force of laborers is being increased and the construction work pushed as rapidly as possible. (April 1, p. 919.)

SPRINGFIELD & CENTRAL ILLINOIS TRACTION.—An officer writes that this company is planning to build from Springfield, Ill., south via Pawnee, Morrisonville, Hillsboro, Greenville and Carlisle to Centralia, with an east and west line through East St. Louis, Granite City, Edwardsville, Vandalia, Louisville and Oiney to Mount Carmel. The work will include three steel bridges, each to be 200 ft. long and about 5,000 ft. of trestles. There will also be some stations, power houses and substations. The principal revenue is to be derived from carrying passengers and coal. The prospects of building the line are good, but it is undecided when bids will be asked for the work. Isaac A. Smith, president and chief engineer, 309 Security building, St. Louis, Mo.

SPRINGFIELD & WESTERN (ELECTRIC).—An officer writes that a charter has just been secured and surveys are to be made at once from Springfield, Mo., west to Carthage and Joplin, with a branch from Paris Springs, south via Mount Vernon to Pierce City, a total of about 100 miles. H. D. Mackay, president; J. I. Woodfill, secretary, and M. M. Hollanback, chief engineer, Springfield. (Aug. 19, p. 333.)

STOCKTON TERMINAL & EASTERN.—This company has begun operating trains on the first section of about 12 miles from Stockton, Cal., northeast to Linden. The plans call for an extension northeast via Bellota to Jenny Lind, in all, 38 miles. M. J. Gardner, president, and J. E. Adams, manager, Stockton. (Jan. 28, p. 210.)

TAMPA & JACKSONVILLE.—Contracts are said to have been given to J. R. Emerson and to Oliver & Kite, Gainesville, Fla., to build an extension from Fairfield, Fla., south for seven miles towards Dunnellon, to which point the line is eventually to be extended. Additional contracts will probably be let soon.

TEXAS ROADS (ELECTRIC).—According to press reports, the Stone & Webster Corporation, of Boston, Mass., is planning to build an electric line between Houston, Tex., and Dallas, to connect on the north with the North Texas Traction Co. and on the south with the Galveston-Houston line. Surveys are said to have been made and work is to be started as soon as the Galveston-Houston line is finished. Work on the Galveston terminal station for the Galveston-Houston line is to be started at once and will be ready for use as soon as the line is finished into Galveston.

TEXAS SOUTHERN.—Incorporated in Texas, with office at San Antonio, Tex., to build from Poteet southeast to Pleasanton, in Atascosa county, eight miles. The incorporators include: F. P. Parks, G. W. Nock, F. R. Remington, J. W. Hunt and F. H. Vurmeister.

Railway Financial News.

ATCHISON, TOPEKA & SANTA FE.—Walker D. Hines, acting chairman of the executive committee, has been elected chairman. Mr. Hines has been acting chairman of the executive committee since the retirement two years ago of Victor Morawetz.

CENTRAL NEW ENGLAND.—The directors have declared the full 5 per cent. on the \$7,250,000 general mortgage income bonds for the year ended July 1, 1910. Of these bonds the New York, New Haven & Hartford owns \$6,900,000. The first payment on these bonds was made last year and was at the rate of 4 per cent.

CHESAPEAKE & OHIO OF INDIANA.—The company has filed a mortgage to secure \$40,000,000 bonds. Of these bonds \$8,200,000 are to be issued to the Chesapeake & Ohio. They are to be 5 per cent. bonds of 1910-1960.

CHICAGO, ROCK ISLAND & PACIFIC.—The block of preferred stock of the Rock Island Company which was taken over by Kuhn, Loeb & Co. last July at a time when it was understood that Pearson-Farquhar syndicate, which had acquired it, were not in a position to carry this stock any longer has been sold by Kuhn, Loeb & Co. to Phelps, Dodge & Co. The stock is said to amount to about 20 per cent., and since the preferred stock of the Rock Island Company carries with it the election of a majority of the directors of the Rock Island Company, which controls the Chicago, Rock Island & Pacific, Phelps, Dodge & Co. have apparently acquired a substantial interest in Rock Island affairs. Phelps, Dodge & Co. control the El Paso & Southwestern, but their principal business interests are connected with the mining and production of copper.

EL PASO & SOUTHWESTERN.—See Chicago, Rock Island & Pacific.

EVANSVILLE & TERRE HAUTE.—The directors have declared a dividend of 5 per cent. on the common stock, payable November 1, and have declared the regular annual dividend of 5 per cent. on the preferred stock, payable in two instalments. The common dividend of 5 per cent. compares with 4 per cent. paid annually from 1906 to 1909 inclusive.

FITCHBURG RAILROAD.—Stockholders are to vote on September 22 on the question of authorizing an issue of \$400,000 preferred stock, the proceeds to be used to reimburse the Boston & Maine for permanent additions and betterments paid for by the B. & M.

FONDA, JOHNSTOWN & GLOVERSVILLE.—This company has applied to the New York Public Service Commission, Second district, for permission to issue the balance of its authorized first consolidated general refunding mortgage bonds of 1903-1953, amounting to \$463,000. The proceeds of these bonds are to pay floating debt and to furnish funds for improvements and betterments.

INTERNATIONAL & GREAT NORTHERN.—Judge McCormick, in the United States circuit court at Dallas, Tex., has, on the application of the second mortgage bondholders' committee, adjourned the foreclosure sale from September 15 to October 6 or some later day to which the sale may be adjourned.

NATIONAL RAILWAYS OF MEXICO.—At a meeting of the stockholders to be held October 5 the question of issuing bonds for making general improvements is to be voted on.

WABASH-PITTSBURGH TERMINAL.—The receivers have filed suit in the United States circuit court at Toledo, Ohio, against the Wabash and the Wheeling & Lake Erie for an accounting under the traffic and trackage agreement by which the Wabash and the Lake Erie agreed to appropriate 25 per cent. of their gross earnings from traffic interchanged with the Terminal to meet any deficiency in interest on the Terminal company's first and second mortgage bonds.

The different industrial centers of Bolivia are at the present time connected with each other by about 2,000 miles of wagon road. The present extent of railways in operation in the Republic is about 500 of so-called trunk lines.

Supply Trade Section.

The Rail Joint Company, New York, has moved its general office to the Cameron building, 185 Madison avenue.

Victor H. Cochrane and Ira G. Hedrick have formed a partnership to practice consulting engineering under the firm name of Hedrick & Cochrane, with office at 1118 McGee street, Kansas City, Mo.

The McKen Motor Car Company, Omaha, Neb., advises that 85 of its cars are now in service, that 37 railways are operating or have ordered them, and that 10 of these lines have placed additional orders for cars.

The Chicago Bridge & Iron Works, Chicago, has bought land in Greenville, Pa., and will build a fabricating shop to have an ultimate capacity of about 4,000 tons. It is expected that the new shop will be ready by the first of the year.

The Frick Company, Waynesboro, Pa., have placed an order with Tate, Jones & Co., Inc., Pittsburgh, Pa., for a large plate heating furnace, 8 ft. x 10 ft., inside. It will be equipped with the Kirkwood fuel oil burning appliances manufactured by this firm.

James A. Sherwood has been appointed Canadian agent for Thos. Firth & Sons, Ltd., Sheffield, England, effective October 1, with headquarters in Montreal. For the past five years Mr. Sherwood has filled a responsible position in the sales organization of E. S. Jackman & Co., Chicago, agents for the Firth-Sterling Steel Co. Prior to that time he was the railway representative in Canada for the Ewald Iron Co. He is thoroughly posted on the fine steel business in all its branches, having been closely associated in the development of the Firth-Sterling business in Chicago, and also having had valuable experience as assistant manager and salesman in the old Chicago staff of Howe-Brown & Co., and Park, Bro. & Co., when these firms were under Mr. Jackman's management in Chicago, during the period 1889-1893.

The Isthmian Canal Commission will receive bids until September 20 for lumber, dredging sleeves, hose, suction pipe, brake-shoes, road machines, lanterns, etc. (Cir. No. 602), and for suction dredge ladder, steel castings, steel discharge pipe, electric motors, punches and dies, electric cable, lumber, etc. (Cir. No. 603), and until September 30 for castings, cold-rolled steel, wire rope, copper ladder rungs, steel and brass tubing, pipe fittings, valves, cocks, oil cups, bolts, nuts, nails, tacks, hinges, twist drills, rail benders, jacks, grindstones, crucibles, shovels, hoes, brooms, plumber's furnaces, anchors, oilers, oil cans, tallow pots, sprinkling cans, cab lamps, steel tapes, hose, packing, gaskets, buffing leather, emery cloth, tablecloths, twine, chairs, soft soap, friction clutch pulley, wool waste, rubber belting fire brick, etc. (Cir. No. 604).

The Marion Shovel & Dredge Company, Marion, Ohio, has recently been organized, with John D. Owens as president, A. E. Cheney, secretary and general manager; George D. Copeland, treasurer, and H. J. Barnhart, chief engineer. It is the intention of the company to build steam shovels, dredges, ballast unloaders and other similar machinery. The company has secured 125 acres of land near Marion, located between the Hocking Valley and the Pennsylvania railways, with the C. D. & M. electric railway running the full length of the site. Bids are now being taken for the plant of structural steel, reinforced concrete and brick. It will be equipped in a modern way, and arranged to meet future extensions without changing the general plan. At the outset the plant will have a capacity of about 10 machines per month. It is the expectation of the company to have it ready for operation in February.

The annual report of the American Locomotive Company shows that at the beginning of the fiscal year, 1909-1910, the company had unfilled orders on its books amounting to \$6,150,000, and on July 1, 1910, unfilled orders amounting to \$17,550,000. President Marshall says that during the first half of the fiscal year there was only a slight increase in the monthly output as compared with that of the preceding year of depression, the revival in plant activities being confined to the six months ended June 30, 1910. In 1909-10 the company earned gross \$32,203,392, an increase over 1908-9 of \$13,194,758. Manufac-

turing, maintenance and administrative expenses and depreciation cost \$29,605,443 last year, an increase over the previous year of \$11,939,481. In expenses for last year there is included \$803,484 for depreciation. The report for 1909 does not state how much of the total operating expenses was allowed for depreciation. After the payment of interest on bonds of constituent companies, coupon notes, etc., the American Locomotive Company had a profit in 1910 of \$2,084,758 as against \$987,139 in 1909. Dividends of 7 per cent. (\$1,750,000) were paid on the preferred stock in both 1909 and 1910. There was a surplus, therefore, in 1910 to the credit of profit and loss of \$334,758, as compared with a deficit to the debit of profit and loss of \$762,861 in 1909. During the year \$5,000,000 5 per cent. notes were issued, of which \$1,000,000 mature October 1, 1912; \$2,000,000 October 1, 1913, and \$2,000,000 October 1, 1914. Of the proceeds of these notes, between \$3,500,000 and \$4,000,000 has been spent on increasing the capacity of the company's plants, principally at Dunkirk, Richmond and Schenectady. During the year the company also bought such of the notes maturing in 1910 as were offered at favorable terms, and on October 1 will pay the balance of the fourth instalment of short term notes amounting to \$911,000, leaving a balance of \$1,000,000 of these notes outstanding, so that with the \$5,000,000 notes issued last year there will be a total of \$6,000,000 notes outstanding. The general balance sheet of June 30, 1910, shows cost of property at \$51,741,792, comparing with a book value of cost of property June 30, 1909, of \$49,757,746. Cash on hand June 30, 1910, amounted to \$1,702,269, as against \$4,672,042 cash in 1909; accounts collectable amounted to \$9,698,073 in 1910 and to \$5,116,925 in 1909; accounts payable in 1910 amounted to \$3,337,708 as against \$977,904 in 1909; total convertible assets in 1910 amounted to \$20,102,468, and total current liabilities amounted to \$10,809,662.

TRADE PUBLICATIONS.

Waterproofing Material.—The Barrett Manufacturing Company, New York, has issued a leaflet containing information regarding the use of its coal tar pitch on the back of the retaining walls around the excavation for the Pennsylvania Station, New York City. The information is in the way of a correction of that previously published in this connection by the Barrett company.

Coal Handling Machinery.—Catalogue No. 16, cloth bound, 8½ in. x 11½ in., and printed on heavy glazed paper, has just been issued by the Mead-Morrison Manufacturing Company, Boston, Mass. This catalogue contains a large number of half-tone illustrations of installations of the McCaslin overlapping gravity bucket conveyor as used for conveying coal, ashes, cold or hot cement clinkers, etc.

Pennsylvania New York Terminal Improvements.—Westinghouse, Church, Kerr & Company, New York, have just issued a booklet containing a complete description of the work done for the Pennsylvania Tunnel & Terminal Railroad and the Long Island Railroad in connection with the terminal improvements in New York City. The description is complete in every detail, including a number of illustrations showing the progress of the work.

Handling Coal, Stone, Gravel, etc.—Bulletin No. 42, just received from the Jeffrey Manufacturing Company, Columbus, Ohio, contains descriptions, with photographs of installations of Jeffrey conveyors, various types of screens, roll crushers, pulverizers, hoists, dump cars, larries, electric locomotives and coal cutting machinery. Booklet No. 28 shows Jeffrey conveying machinery for handling stone, sand, gravel, ores, etc. These publications will be sent to interested parties upon request.

RAILWAY STRUCTURES.

BELLEVILLE, KAN.—The Union Pacific plans to build a new roundhouse.

ELLWOOD CITY, PA.—Work, it is said, has been resumed on

the bridge over the Beaver river from West Ellwood Junction to Ellwood City. The plans call for a bridge to carry tracks for street railways. Work was started on the piers some months ago but was stopped pending arrangements for crossing the tracks on both sides of the river. This has now been adjusted and construction work will be pushed to completion. H. W. Hartman, Ellwood City, is back of the project.

EL PASO, TEX.—Bids are wanted until October 1 by J. L. Campbell, engineer maintenance of way at El Paso, Tex., of the El Paso & Southwestern of Texas, for enlarging the freight house at El Paso. (Aug. 12, p. 297.)

FALLS CITY, NEB.—The Missouri Pacific is building a machine shop with four engine pits for running repairs, and a division office building.

FORT WILLIAM, ONT.—An officer of the Canadian Pacific writes that a contract has been given to A. C. Stewart for putting up a single lift bascule bridge, 125 ft. long, with plate girder approach spans, to be built over the Kaministiquia river. (Aug. 26, p. 375.)

GALVESTON, TEX.—See Texas Roads under Railway Construction.

HOUSTON, TEX.—The Southern Pacific is said to have given a contract to William Miller & Sons for putting up the building and the plumbing work of the new nine-story office building at Travis street and Franklin avenue in Houston. (Aug. 26, p. 375.)

INDIANAPOLIS, IND.—The Pennsylvania Lines West are preparing detailed plans for a new outbound freight house on Delaware street, between South and Merrill streets. The building will be 800 ft. x 30 ft., and of brick construction with slate roof. In connection with the house five tracks will be built with covered platforms between them.

IOLA, KAN.—The Missouri Pacific plans to build a new passenger station.

MARSHALL, TEX.—The Texas & Pacific is building a new truck shop between the freight car shop and the coach shop.

MELBOURNE, KY.—The Chesapeake & Ohio has started work on a new machine shop to relieve congestion in the company's repair shops.

OROVILLE, CAL.—According to press reports, the Southern Pacific has plans made for building the new passenger station at Oroville. (May 27, p. 1,328.)

PORTLAND, ORE.—Local press reports indicate that the railways entering Portland are approaching an agreement regarding the building of a union passenger station.

REDDING, CAL.—According to press reports, the Southern Pacific has plans made for putting up a new passenger station in Redding. (Feb. 4, p. 283.)

ROCHESTER, N. Y.—The New York Central is wrecking buildings preparatory to building a new passenger station.

SACRAMENTO, CAL.—The Northern Electric Co. has let the contract for building a bridge over the Sacramento river to the Missouri Valley Bridge & Iron Co. The bridge was mentioned in the *Railway Age Gazette* of August 5.

SANDERSON, TEX.—The pumping plant and water tank of the Southern Pacific were burned on August 23.

SPRINGFIELD, ILL.—See Springfield & Central Illinois Traction under Railway Construction.

STEBENVILLE, OHIO.—An officer of the Pittsburgh, Cincinnati, Chicago & St. Louis writes that contracts will probably be let in October for putting up a brick passenger station in Steubenville. The structure is to be one-story high, 40 ft. x 240 ft.

STILLWATER, OKLA.—See Oklahoma Public Service & Interurban under Railway Construction.

SUMMIT, CAL.—The Southern Pacific plans to build a \$10,000 reinforced concrete passenger station.

SWEETWATER, TEX.—The Pecos & Northern Texas will build a roundhouse, yards and other facilities for making Sweetwater a division point. The company has about 100 teams grading on the yard and main line in that vicinity.

VIADUCT, TEX.—The Southern Pacific is replacing its bridge over the Pecos river. This structure is 2,080 ft. long and 328 ft. above high water mark of the river.

Late News.

The items in this column were received after the classified departments were closed.

Joseph E. Buker, first vice-president of the Chicago Car Heating Company, Chicago, resigned on July 25.

Frank L. Moe, western freight agent of the National Railways of Mexico at Chicago, has been appointed general western agent in charge of freight and passenger traffic, with office at Chicago.

C. E. E. Ussher, assistant passenger traffic manager, western lines of the Canadian Pacific, at Winnipeg, Man., has been appointed passenger traffic manager, succeeding Robert Kerr, who is to retire, having reached the age limit, effective October 1.

R. D. Pusey has been appointed an assistant general passenger agent of the Louisville & Nashville, succeeding J. A. Boyd, assigned to other duties, and Milton Smith has also been appointed an assistant general passenger agent, both with offices at Louisville, Ky.

It is reported that the Argentine Government Railways have ordered the 118 passenger cars, reported in the *Railway Age Gazette* of May 13, from the Harlan & Hollingsworth Corp., and a number of freight equipment cars from the American Car & Foundry Company.

Lucius Tuttle, whose resignation as president of the Boston & Maine is announced in this issue, has resigned also as president of the Maine Central, and Charles S. Mellen, president of the New York, New Haven & Hartford, is now the acting president of both these companies.

The committee representing London bankers interested in the bill of lading question has issued the following statement: "The conference regrets that it cannot regard the bills of lading validation schemes submitted by the American Bankers' Association as affording the protection desired by European cotton accepting banks. The banks will decline from Oct. 31 to accept against bills of lading unless guaranteed through exchange buyers in America, both in regard to the signature and the possession of the cotton by the carriers at the time of issue."

A special train of the Norfolk & Western carrying President Johnston and General Manager Maher was wrecked on September 14. The locomotive, tender and two empty coaches left the track while running about 47 miles an hour past the Delorme (W. Va.) station. Fayette Woolwine, road foreman of engines, and the conductor and fireman were killed, and the telegraph operator at Delorme was so badly scalded that he died on the way to the hospital. The wreck was caused by the breaking of a bolt on one of the trucks under the tender.

The twenty-eighth annual convention of the Roadmasters' and Maintenance of Way Association was held at the Great Northern Hotel, Chicago, September 13-16. The secretary reports 114 new members and a total attendance of 200 at the convention. The committee report, Proper Care of Track Materials and Tools, was given and adopted on Tuesday. The report, Standard Switch Targets, was reported and discussed on Wednesday, and the association by vote favored the single target switch stand for all lines, both single and double track. New officers were elected as follows: President, Thomas Thompson, A. T. & S. F., Joliet, Ill.; first vice-president, L. C. Ryan, C. & N. W., Sterling, Ill.; second vice-president, D. T. Lynch, C. B. & Q., Alliance, Neb.; chairman executive committee, M. Burke, C. M. & St. P., Chicago; secretary and treasurer, W. E. Emery, chief engineer, Peoria & Pekin Union, Peoria, Ill. The next convention will be held in St. Louis, Mo. At the Thursday morning session the manufacturers gave five-minute talks, and in the afternoon the association discussed cattle guards, ties, tie plates, rail anchors and new and improved appliances. On Friday an automobile trip was arranged by the exhibitors, among which were the following firms: American Hoist & Derrick Co., American Steel & Wire Co., American Valve & Meter Co., the Buda Co., Duntley Manufacturing Co., Economy Separable Switch Joint Co., Thomas A. Malt, Positive Rail Anchor Co., Pruyn Reinforced Concrete Railway Tie Co., Rail Joint Co., Railway Specialty & Supply Co., Ramapo Iron Works, Vaughn Rail Support Co. and Verola Tool Works.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

The Utah Copper Co., Brighton, Utah, has ordered ten 16-in. x 24-in. cylinder locomotives from the H. K. Porter Co.

The Louisiana & Pacific, Long Bell Lumber Company, Kansas City, Mo., has ordered one mogul locomotive from the Baldwin Locomotive Works.

The Chino Copper Co., Santa Rita, N. Mex., reported in the *Railway Age Gazette* of July 15 as being in the market for locomotives, has ordered four 15-in. x 24-in. cylinder locomotives from the H. K. Porter Co.

The Union Railroad has ordered the ten consolidation locomotives mentioned in the *Railway Age Gazette* of August 26 from the American Locomotive Co. The engines will be built at the Richmond, Va., plant.

CAR BUILDING.

The Louisville & Nashville is in the market for 100 ballast cars.

The Solway Process Company, Detroit, Mich., is in the market for 50 fifty-ton gondola cars.

The Berwind Lumber Company, Pittsburgh, Pa., has ordered 10 forty-ton flat cars from the Pressed Steel Car Company.

The Niles-Bement-Pond Company, New York, is in the market for 20 fifty-ton gondola cars.

The Colorado & Southern has ordered 250 National dump stock cars from the American Car & Foundry Co.

The Atchison, Topeka & Santa Fe is said to have ordered 1,000 refrigerator cars from the American Car & Foundry Co. This item is not confirmed.

The Mexico North-Western is in the market for 200 logging cars. This equipment has been wrongly reported as for a Mexico Northeastern.

Lewis T. Lenaire, Tribune building, New York, advises that the 50 box cars, for which he is negotiating for a South American road, as reported in the *Railway Age Gazette* of April 15, have not yet been placed, but that definite information regarding their disposition will be available at an early date.

The Havana Central, reported in the *Railway Age Gazette* of August 26 as being in the market for freight equipment, has ordered 100 thirty-ton flat, 150 thirty-ton box and 140 cabooses from the American Car & Foundry Company. This same railway is now making inquiries for three baggage and six passenger cars.

MACHINERY AND TOOLS.

The Scullin-Gallagher Iron & Steel Co., St. Louis, Mo., has ordered a 10-ton, three-motor, traveling crane.

IRON AND STEEL.

The Chesapeake & Ohio is said to be in the market for 10,000 tons of rails.

The Western Maryland is said to be in the market for 10,000 tons of rails.

The Chicago & North Western is in the market for 1,000 tons of structural steel.

The Denver & Rio Grande is said to be in the market for 14,000 tons of rails.

The Missouri Pacific has ordered 770 tons of bridge steel from the Virginia Bridge & Iron Works.

The Chicago, Burlington & Quincy has ordered 1,000 tons of bridge steel from the American Bridge Co.

The San Pedro, Los Angeles & Salt Lake has ordered 12,000 tons of rails from the Colorado Fuel & Iron Co.

The Grand Trunk is in the market for 10,000 tons of 100-lb. rails. (See *Railway Construction*, March 4, 1910.)

The New York, New Haven & Hartford is in the market for 500 tons of bridge steel for a three-span double-track bridge.

The Cincinnati, Hamilton & Dayton has ordered 400 tons of bridge steel from the American Bridge Co. for a bridge over the Miami river.

The Southern Pacific has ordered 1,500 tons of structural steel from Noelke, Richards & Co. for an office building at Houston, Tex. (See *Railway Structures*, July 17, 1910.)

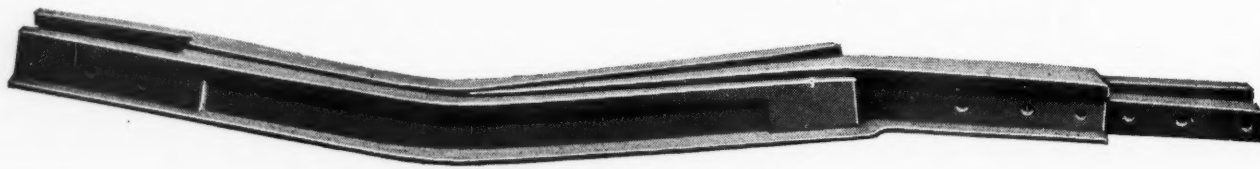
The Oregon Trunk has ordered 5,100 tons of bridge steel from the Pennsylvania Steel Co. for three bridges, one at Celilo, Ore., over the Columbia river, and two small ones over the Des Chutes river. The inquiry for this steel was mentioned in the *Railway Age Gazette* of April 15, 1910.

General Conditions in Steel.—Although the second week of September has passed, no marked improvement in the steel business has taken place. Unfilled orders of the United States Steel Corporation on August 31 were 3,537,128 tons, which is not far above the lowest figure ever reached, 3,027,436 tons on September 30, 1904. The remaining two weeks of this month will have to show a heavy increase in order to prevent a shrinkage of unfilled tonnage below the lowest level ever reported. The largest amount reported was on September 30, 1906, when 8,489,718 tons were yet unfilled. The July last report was 3,970,931 and that of June 30 was 4,257,794 tons. The pending contract for the New York City subways, which will require some 150,000 tons, rails and structural, provide the main topic of interest at present.

R-N-R Manganese Frog.

The maker of the manganese frog shown herewith, the Indianapolis Switch & Frog Company, Springfield, Ohio, has specialized on solid manganese construction for frogs and crossings. The idea in this type of frog is the elimination of the bolted construction. The track rails connect directly with the frog proper, without any alteration. But one pair of splices, instead of four, is required, and all rails are protected by manganese easers, intended to eliminate all joint and point pounding.

The test frog illustrated was subjected to 165 blows of a 1,250-lb. and 2,500-lb. weight from heights of from 3 ft. to 23 ft.,



Manganese Frog After Test.

The International & Great Northern is now receiving the wood working and other machinery for its Taylor, Tex., shops.

aggregating 1,679,375 ft. lbs., after which it showed no fracture or impairment of any nature.

A New Form of Grab Bucket.

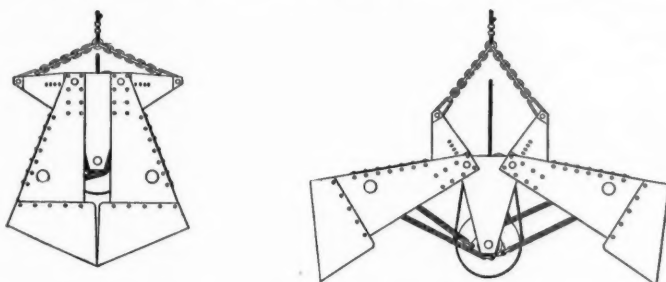
The grab bucket illustrated was introduced by the Andresen-Evans Company, Chicago, and has a number of features interesting to excavating contractors as well as to men in charge of power plants and coal handling apparatus. It is designed for handling all classes of bulk materials, such as coal, ore, etc. The grab is made in two types; one to be used with two



Andresen-Evans Grab Bucket Handling Lump Coal.

lines and the other with three or four lines. Both types may be used on two-drum hoists.

The drawing of the two line type shows the feature which first attracts the attention of practical men; namely, that the closing chains always pull in a direction parallel to the resistance. This, with the long lever arm, gives a powerful digging action and it is not necessary to drop the grab in order to insure cutting action. The grab continues to sink during the loading process and excess material is forced out of the backs of the scoops. This insures a full load without packing and the



Open and Closed Positions of Two Line Grab.

grab is always closed before hoisting. The main advantages claimed for this grab are: Powerful digging action; wide opening over which the digging action takes place; positive opening; small head room required; small drop of scoops in opening; low center of gravity and wide base when open such that it will not tip over when digging on side of pile, and simplicity and rigidity of construction.

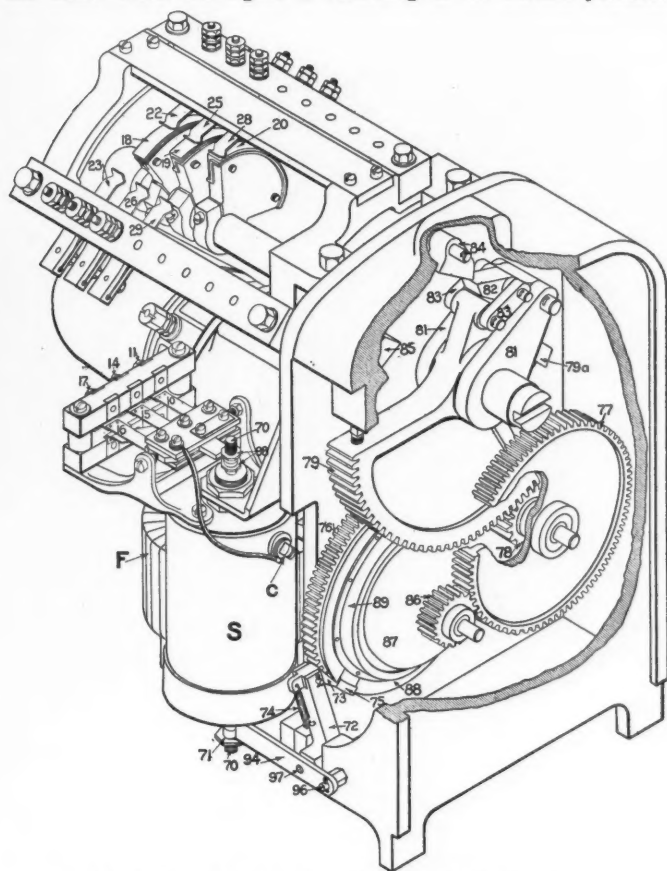
It is also to be noted that the grab is well braced in all planes, has castings of steel and bearings of phosphor bronze. This grab has been perfected after two years of service at

various plants under different conditions and handling different materials.

The Union Style "T" Signal.

The Union Switch & Signal Company, Swissvale, Pa., has recently put on the market a new type of signal known as the style "T." This signal is designed to meet all the conditions and requirements of modern block-signal practice. It is a "top-post" semaphore, adaptable to upper or lower quadrant two or three-position indications, and designed to be placed on top of the signal post or clamped to it, as conditions require. Other distinctive features are a light and compact mechanism, in which great strength and high efficiency are secured, and a number of safety precautions, among which is the motor drive to the normal position.

The mechanism comprises a motor of the bipolar type, with a toothed armature and two independent shunt wound fields, a holding-clear device, consisting of a magnet and a lever arrangement circuit controller, a clutch, and a mechanical lock. One of the motor field coils is energized when the signal is clearing, the other when the signal is returning to its normal position.



Mechanism for Union Style "T" Semaphore.

One coil has less resistance than the other. This is to permit a greater generated current to flow when the signal is going to stop than when it is clearing, because in clearing the weight assists in stopping motion, whereas in going to stop the weight is added to the load to be overcome by the motor.

The construction of the pole pieces is such that the teeth of the armature pass into and out of the magnetic field gradually, there being no point at which the magnetic attraction is greater than at the points adjacent on either side. The forces on the armature due to the field alone are, therefore, balanced in all positions of the armature, and it is as free to rotate when the field is energized as it is when the field is not energized. Thus there can be no tendency to hold the signal clear, even though the field should be excited, with no current in the armature.

The circuit controller is operated by the holding clear magnet which has two coils, one to pick up and one to hold up its armature. When the magnet is energized the motor circuits for clearing the signal are closed; when de-energized the motor circuits for driving the signal to stop are closed.

A clutch is interposed between the motor and semaphore to

prevent straining or breaking any part of the mechanism if it should occur that the motor failed to hold the semaphore, as it would if the circuit happened to be open. Without this clutch some part would be certain to break or be unduly strained if the semaphore should drop from clear to normal without any retardation. If to secure the mechanism against strain were the only consideration a simple ratchet would answer the purpose, but when to this requirement is added that of driving the signal to its normal position by the motor, something more than a ratchet is required. The clutch must hold enough to permit the motor to exert its force on the semaphore, and must let go before the stress becomes great enough to produce a strain.

The mechanically operated circuit controller for opening the motor circuit when the semaphore has reached the position corresponding to the state of the track ahead, and for selecting the slot magnet circuits between the caution and clearing wires, comprises insulated sectors carried by the semaphore shaft, which co-act with brushes supported on and insulated by wooden bars carried on the frame of the machine. Three of these sectors are regularly employed; one for controlling the magnet circuits, another for controlling the motor circuits when the signal is clearing and a third for controlling the motor circuits

rods are free to turn in the bushings of the shafts as well as in the bearings in the frame, and by reason of their small diameter, and smooth hard surfaces, form bearings that are nearly frictionless. The semaphore shaft is made of high carbon steel, the hard smooth surface of which will not seize the bearings.

The style "T" is now being installed in connection with interlocking and block signal work on the Baltimore & Ohio, the Chicago, Milwaukee & St. Paul, the Great Northern, and other roads.

An Electric Fixture for Car Lighting.

Years of experience in the manufacture of car lighting fixtures has assisted the Safety Car Heating & Lighting Company, New York, in producing an electric fixture with many new and commendable features.

One design of this fixture, shown in Fig. 1, preferably uses the 40 candle power tungsten lamp, with a shade designed to insure brilliant illumination and at the same time completely diffuse the objectionable glare of the bare tungsten lamp. This shade is held securely by a shade holding device, Fig. 2, which is in successful use on several thousand fixtures. A slight pressure inserts the neck of the shade in the split cone grip and it is locked by screwing down the ornamental ring or nut. This securely holds the shade while preventing breakage from uneven pressure and allowing expansion of the shade due to heat.



Fig. 1.



Fig. 2.



Fig. 3.

Electric Fixture for Car Lighting.

when the signal is returning to normal. The last mentioned sector has a notch cut in its periphery, for the purpose of opening the motor circuit, for an instant, just before the semaphore reaches the caution position, to permit of its stopping at this position if the state of the track ahead requires such a movement. Other sectors may be added if the signal is required to control circuits extraneous to its own government. A mechanical lock is provided, when required by the purchaser, to prevent the signal being cleared by hand.

The semaphore shaft is formed in three parts joined by tongue and groove couplings. One part carries the sectors of the circuit controller, another, the segmental gear, and the third the semaphore arm. This construction permits of the removal of the circuit controller without disturbing any other part, and allows the entire mechanism to be removed, leaving the semaphore arm in place.

Every precaution has been taken in the design of the signal to reduce friction to a minimum. Ball bearings have not been used, as they add considerable to the cost of the signal, and tests show that there is very little, if any, diminution of friction by their use. The motor has bearings of very small diameter provided with self oilers. The bearings of the two intermediate shafts are formed by boring large holes through the shafts, in which short brass bushings are inserted at each end of the shaft. Through these extend small Stubb's steel rods. The

Another feature is illustrated in Fig. 3. This shows the interior or electrical parts, designed to allow removal of the exterior or ornamental parts, including the shade and shade holder, without disturbing the electrical connections. This should be appreciated as a time saver by both the electrical department and shop foreman in repairing or refinishing cars. The illustrations show only one design of this type of fixture, but the construction allows great latitude in artistic treatment to harmonize with any interior finish or class of railway cars.

FOREIGN RAILWAY NOTES.

The total mileage of new railway projected in Bolivia in 1909 was 863 miles. A continuation of the main railway line under construction is needed to make a connection between the Argentine system of railways and to form part of a through route from Lima, Peru, to Buenos Ayres, Argentina.

By an executive decree of October 28, 1909, the government of Brazil was authorized to make a contract with the Great Western Limited for the extension of several lines leased to this railway company. The survey for these extensions have already been made, and work will shortly be begun.